Collaborative Information Behaviour in Undergraduate Group Projects: A Study of Engineering Students

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ABSTRACT
This paper reports on ongoing research investigating the collaborative information behaviour of undergraduate engineering students who are working on a course-based engineering project. It presents data collected through a web-based survey undertaken at the end of a senior multidisciplinary design engineering course in a Canadian University. The survey was completed in March 2010 by 42 individual students and included 33 questions relating to both individual and group activities during the project. The findings show that students engaged in more collaborative activities during the information need identification stage and the final stage in which information was employed to write the final report. The open-ended questions showed students’ preferences to approach other people as information channels to guide them to relevant information that are appropriate to the project task. Different strategies towards collaborative activities were also identified among student groups. Collaborative activities were found to be at their highest during the task formulation stage at the early stage of the project and at a lesser level during the selection of the design solution.

Keywords

INTRODUCTION
Information seeking is an important and integrated part of work domains and work practices, and it has been the focus of many research studies in information science. While many different models of information seeking have been proposed, they mostly assume that the information seeker is an individual interacting with complex information spaces. Recent research has demonstrated that people frequently collaborate and communicate when they retrieve and use information, and researchers have begun to challenge the individualistic approach by exploring the social, contextual, and collaborative dimensions of information seeking.

A large volume of research has explored the information behaviour of engineers as professional knowledge workers. A recent questionnaire-based study, for example, found that design engineers spend 21% of their time searching for and absorbing information (Lowe, McMahon, & Culley, 2004). Engineering students, particularly in design engineering courses, are expected to work as a group to solve an engineering problem. The problem is designed and evaluated in many ways to ensure that all students will work collaboratively as a group to solve the problem and provide a possible design through acquiring and using different types of information during all the project stages. Understanding collaborative information behaviour of engineering students is an area of interest for engineering educators, engineering librarians and information professionals who support these courses. Saleh (2011) describes how this research is beneficial to the design of services of engineering libraries for design courses and how to support students’ information literacy skills.

COLLABORATIVE INFORMATION BEHAVIOUR
The collective aspects of information behaviour have been little studied. Collaborative information behaviour is a rather new concern still under development in information studies (Talja, 2002, p.134). It investigates manifestations of collaboration in information seeking and retrieval to better understand and support work and knowledge processes. In his review of the literature, Foster (2006) notes that most of the research on collaborative information behaviour did not focus on collaboration itself. Talja (2002) has argued that studies of collaborative information behaviour have not been interested in the dynamics of group work, the emergence and sustenance of collaborations, or human relationships within collaborative work processes. Rather, they have looked at collaboration in the processes of information seeking, retrieval, filtering, and synthesis.

Gray (1989) describes collaboration as “a process through which parties who see different aspects of a problem can constructively explore their differences and search for
situational awareness, defined as individual, intra-group awareness of a dynamic military work context of command and control, Pierce (2000) studied information behaviour qualitatively in the context of collaborative information seeking. Sonnenwald and Lievrouw (1997), and Sonnenwald and Lievrouw (2000) where they highlighted the phenomenon of dense social networks of interwoven situational awareness, defined as individual, intra-group and inter-group shared understanding of the situation. The authors identify the need for ‘dense social networks’ of frequent communications between participants, the work task they are involved with and the situation, and noted a continuing necessity for information exchange during work operations. They also defined contested collaboration as a phenomenon where team members maintain a sense of cooperation while they actually work to further their own personal interests, which sometimes would challenge the nature of cooperation.

Collaborative information behaviour also has been defined as the activities that a group or a team of people undertakes to identify and resolve a shared information need (Poltrock et al., 2003) This definition implies that collaborative activities are different from individual ones as they include communicating about the information need, sharing the retrieved information within the team, and coordinating the constituent information retrieval activities across multiple participants.

Yet another study has defined collaborative information behaviour as “an information access activity related to a specific problem-solving activity that, implicitly or explicitly, involves human beings interacting with other human(s) directly and/or through texts (e.g., documents, notes, figures) as information sources in an work task related information seeking and retrieval process either in a specific workplace setting or in a more open community or environment” (Hansen & Jarvelin, 2005). In the same study, the authors explained that this definition should be seen as a preliminarily definition that needs more refining through further studies, observations and investigations.

Surowiecki (2004) describes four conditions for a successful collaboration to happen:

- **Diversity of opinion.** Each person should have some private information, even if it is just an eccentric interpretation of known facts.
- **Independence.** People’s opinions are not determined by the opinions of those around them.
- **Decentralization.** People are able to specialize and draw on local knowledge.
- **Aggregation.** Some mechanism exists for turning private judgments into a collective decision.

In the research reported in this paper collaborative information behaviour is defined as “an activity where two or more actors communicate to identify information for accomplishing a task or solving a problem. .. [it] includes processes of problem identification, analysis of information need, query formulation, retrieval interactions, evaluation, presentation of results, and applying results to resolve an information problem” (Talja & Hansen, 2006) This definition was selected as it directly relates the task to the information behaviour of users and describes information-related activities as dynamic ones that are dependent on the assigned task and its complexity.

**Learning tasks in information behaviour studies**

Learning tasks can be described as work tasks for the students in an educational setting, but they differ from other work tasks that have been traditionally described in the literature of library and information science and that targeted the work tasks of professionals (Allen & Wilson, 2003; Bartlett & Toms, 2005; Fidel & Green, 2004; Hansen & Järvelin, 2005; Leckie, 1996; Reddy & Jansen, 2008). The learning task designed by the teacher has similar features to a professional work task, but also has embedded learning outcomes and does not only create a product or develop a solution. The aim of a learning task is to help the learner to achieve specified learning outcomes through interaction with the task description and the problem constraints to define and develop an evidence-based solution (Tanni & Sormunen, 2008).

In a learning task, learners need to develop a solution over an extended period of time and they pursue their own ways of investigation that require them to identify what information is important to them, construct new meanings, and explain their new understandings through predefined stages in their learning task (Escola, 2005a; Kuhlthau, 2004; Limberg, 2007). Learning tasks are initiated by a learning assignment that incorporates the whole process in which the task is introduced to the learners, and defines the requirements for the final documentary or presentational product of the task (McGregor & Streitenberger, 2004).

Limberg (2007) argues that the concept of task is germane to information seeking in the context of learning, and describes learning tasks as similar to other tasks in that they have a beginning and end as well as specific goals to be accomplished throughout the task. Learning tasks differ from work tasks in many aspects, however, because of the
discursive practice in education. Limberg identifies two particular conditions that can affect information seeking during learning tasks in formal education: the tasks are always imposed, and they are related to the intended learning outcomes for different content and abilities.

There are few studies in information science research that investigate the impact of learning tasks on learners’ information behaviour. Pitts (1994) investigated students’ use of information while they were engaged in a science assignment and discovered that it was impossible to examine the student’s use of information without including in the study other aspects of their learning assignment. She identified aspects of learning and how they are constantly intertwined with the information-seeking process. Limberg (1999) carried out a study on students engaged in group projects focusing on how groups of students working on a group project selected sources and dealt with information sources. She concluded that when a consensus was reached within a group on the information sources relevant to a topic it lead to reduced critical analysis of the project topic. Eskola (2005b) studied the information behaviour of undergraduate students in both problem-based learning and traditional lecture-based learning. She found that students in problem-based learning faced challenging tasks that required them to look extensively for information from various resources and to critically think about evaluating information sources.

Kuhlthau (2004, p. 58) described the outcome of the information-seeking process as learning, thus situating the user’s process of learning from information as an important element in information behaviour. Limberg (2005) argued that information seeking and use influence learning outcomes and, recommended further study of the interactive relationship between learners’ understanding of subject content and their experience of information seeking.

Todd (2006) studied how learners transform information into personal knowledge by analysing the development of knowledge in terms of content, number and structure of relational statements that the learners made on their topics. The major conclusion was that the statements represented development of topical knowledge in two distinctive patterns. First, the additive approach characterized the progressive acquisition of facts. Second, the integrative approach characterized a pattern focusing on explanations and results rather than descriptions of facts. The literature on learning tasks in information behaviour studies calls for more empirical research that includes the process of constructing meaning from information sources.

**RESEARCH DESIGN**

The design of the research is based on a qualitative and longitudinal research approach that is concerned with an understanding of group members’ experience while undertaking together an assigned project. It adopts a multi-method approach that overall will include a questionnaire and a set of interviews to collect data on complex phenomena, as each individual method would deliver only partial evidence on the phenomena; using multiple methods is expected to cover multiple aspects of students’ experience.

The research is designed to examine collaborative information behaviour in a naturalistic educational setting to gain more understanding of how students collaboratively seek information in an academic course and how students’ information behaviours are affected by the learning task and its perceived complexity. The main research question, therefore, is: How does students’ information behaviour interact with their underlying conceptions of the project learning task and its complexity in a project-based engineering course. Saleh and Large (2010) describe how the study is originally designed and the conceptual approach of this research.

**RESEARCH APPROACH**

A pilot study was conducted in March 2010 to collect data on students’ experience in the design course and how the project task interacted with the group’s collaborative information needs, seeking, and use. The pilot study did not aim to ask students about the information-seeking process in detail but it did try to capture the relationship between project task and students’ information behaviour.

A web-based questionnaire of 33 questions was sent to students near the end of the academic year 2009/10 and at the end of their project that took 8 months to accomplish in the final year capstone design course. The questionnaire was designed to obtain feedback about their experience of collaborative information behaviour during the project. The selected class comprised 63 students divided into 20 project groups. The questionnaire was available to students for 3 weeks and was to be completed individually.

The questionnaire had two parts: the first measured the perceived learning task complexity, and the second focused upon the collaborative information behaviour from the students’ point of view. Many questions were open ended to allow students to think about their experience, in addition to closed questions where they indicated their level of agreement using a Likert scale concerning a number of statements about the project topic and their information behaviour. Students were asked to give an answer about their level of agreement on the scale 1-5, where 1 is lowest (strongly disagree) and 5 is highest (strongly agree). For the purpose of data analysis, the level of agreement will be described as: SA, A, N, D, and SD representing strongly agree, agree, neither agree/disagree, disagree, or strongly disagree respectively.

The questionnaire started with a numbers of statements that were based on the reviewed literature and the selected
theoretical framework for this study. Relevant statements were used to examine both the dimensions of the project as a learning task and the information-related activities of the group. The statements served as a point of departure for the study; the intention is to elaborate on them throughout the research rather than to test them as hypotheses.

**FINDINGS**

To meet ethical research requirements, the survey was designed to ensure anonymity of respondents and it was not mandatory for students to answer the survey.

**Profile of respondents**

Survey responses were received from 42 of the 66 students involved in the engineering design project, a response rate of 66% and with representation from all 20 project groups to which they had been assigned. The size of each group varied from 2 to 4 students. The number of the questionnaire respondents who belonged to the same project group varied: 1 group had 4 respondents, 6 groups had 3 respondents, 7 groups had 2 respondents, and 6 groups had only one respondent. Project numbers were first coded randomly with characters depending on the number of respondents within each specific group. Each project is assigned to a character from A to T and respondents were assigned to numerical codes that represent their project, so respondents were identified as A1,B3, E4 .. etc.

The responding students were from different engineering departments but who all were working on a multidisciplinary project. Respondents were asked to identify their department in the second question. The majority of respondents (19) were from Mechanical Engineering, 13 from Chemical Engineering, 5 from Engineering Physics, 2 from Civil Engineering, 2 from Applied Mathematics, and 1 from Electrical Engineering.

**Task assignment**

The first 3 survey statements were about students’ interest in their selected projects, the project topic’s clarity, and the students’ prior topic knowledge at the beginning of the project (Table 1). Most students had an interest in the project topic but their perceptions of their prior knowledge and therefore of the information they would need to gather for the project varied among respondents.

**Finding information and task formulation**

Students were then asked about how they perceive the process of finding relevant information for their projects and whether this process became easier as their understanding of the project topic increased as their information grew. The results show that most students agree with the positive impact of task understanding on finding the information that they used (Table 2).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Respondents (frequency)</th>
<th>Confidence Interval @ 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had an interest in the project topic before I was assigned to it.</td>
<td>15 17 6 4 0</td>
<td>4.02 4 0.95 3.74 4.31</td>
</tr>
<tr>
<td>At the beginning of the project, I felt that I had prior knowledge about</td>
<td>1 16 10 9 6</td>
<td>2.93 4 1.13 2.59 3.27</td>
</tr>
<tr>
<td>the project topic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At the beginning of the project, I felt that the project topic was clear</td>
<td>2 18 9 9 4</td>
<td>3.12 4 1.11 2.78 3.45</td>
</tr>
<tr>
<td>to me and I could easily find the needed information.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Students’ perceptions to task assignment

<table>
<thead>
<tr>
<th>Statement</th>
<th>Respondents (frequency)</th>
<th>Confidence Interval @ 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding relevant information improved with my understanding of the project</td>
<td>13 23 4 2 0</td>
<td>4.12 4 0.77 3.89 4.35</td>
</tr>
<tr>
<td>scope.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finding and using information for my project was an ongoing activity.</td>
<td>23 18 1 0 0</td>
<td>4.52 5 0.55 4.36 4.69</td>
</tr>
<tr>
<td>The project nature required me to look for relevant information from</td>
<td>13 22 4 3 0</td>
<td>4.07 4 0.84 3.82 4.32</td>
</tr>
<tr>
<td>different sources.</td>
<td></td>
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Table 2. Students’ perceptions to information seeking
Students were also asked if finding and using information was an ongoing activity during the project. Their responses show that the level of student agreement with this statement is relatively high. Students were finally asked if they had to use multiple information sources and their responses show a high level of agreement (Table 2).

Students perceived finding information for the project as an easy process at the beginning, with a high level of agreement that finding information was dependent on their understanding of the project topic and also that the nature of the project required them to locate information through many different channels and from many different sources.

**Types of documentary information sources**
Students were asked to identify the types of information sources they used for their projects and to select all the types of information sources they have used. The selected information sources are available from different channels as this meets the justification for engineering as an information-intensive field that requires finding and using information that is not necessarily available from one specific channel. The results also show evidence of the diversity of information sources that students had to use during their project, as shown in Figure 1. The nature of the project as an engineering project related to a real industry client required the students to use many industry-based literature sources such as industry standards, product information, and patents, as well as requesting price quotes from products suppliers. There was also a high usage of technical reports and engineering manuals. Other information sources included “asking experts or the project client”

<table>
<thead>
<tr>
<th>Statement</th>
<th>Respondents (frequency)</th>
<th>Confidence Interval @ 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(We worked together in a group to look for information because...)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is a requirement for this course to work as a team</td>
<td>12 9 14 3 4</td>
<td>3.14 3.90</td>
</tr>
<tr>
<td>The information needed for the project is complex</td>
<td>7 18 10 6 1</td>
<td>2.64 3.49</td>
</tr>
<tr>
<td>The needed information was not available to any of us as individuals</td>
<td>0 6 15 14 7</td>
<td>2.19 2.76</td>
</tr>
<tr>
<td>It is easier to look for information as a group rather than as an individual</td>
<td>4 12 15 10 1</td>
<td>2.64 3.49</td>
</tr>
<tr>
<td>The needed information requires searching expertise that I do not have as an individual</td>
<td>2 8 13 11 8</td>
<td>2.30 2.99</td>
</tr>
</tbody>
</table>

Table 3. The reason of collaborative information activities
Students were then asked about the outcomes of their collaborative information activities and how often they were able to find the information collaboratively as a group. Most students agreed that the outcomes of collaborative activities had been positive: 11.90% replied “always”, 54.76% replied “often”, and 13.95% replied “occasionally”.

Students were also asked about the tools that they used during their collaborative information-related activities. All students (100%) used email and face-to-face meetings, 52.38% used file sharing tools such as Google Docs, or Dropbox, 73.81% used Telephone and text messaging, 18.05% used instant messaging tools, and 4.76% used social networking sites.

**Open ended questions**

Students’ responses to open ended questions provided rich data for the study. These questions were designed to capture a snapshot of students’ perceptions of their individual information behaviour as well as their group behaviour. The categories that emerged from the open ended questions are discussed below.

**Collaborative Information Behaviour: Group Setting**

Students’ responses showed that the multidisciplinary nature of the project was a key factor in their collaborative activities as the subject knowledge about particular areas was not homogeneous among group members who came from different engineering departments. Groups reported an average of 2 to 3 meetings per week to work on the project. Positive Group dynamics and face to face meetings were important group solidifers, and 28 respondents reported good group dynamics and individual interest in the project topic as key factors. As one student commented: “The team members in our group took an incredible interest in the project, as a result we all wanted to be equally informed and actively participating and contributing in searching for knowledge; this is what has driven our team to work together to search for information”. However, another respondent mentioned that having a group of only 2 and a lack of interest had a negative impact: “I have an important comment. We are a 2-person group. My partner was not fully interested in the project to begin with and now after 7 months has very little interest left in it. I believe that due to their lack of interest, there is a disregard for the project and that most on the work has fallen on my shoulders. The dynamics of this 2 person group are very poor and I think that at least 3 are needed to have proper accountability of group members and the interest”. In sharp contrast, however, a response from the member of another group of 2 was much more positive, and the smallness of the group was seen as a facilitating factor in collaborative information seeking activities: “Only because we are a group of two and looking for the same information so collaboration was easier and helped us to confirm that what the other found was good [and] credible information.”

As required by the course setting, students had to submit a weekly progress report and a project memo describing all their activities. Weekly assignments were seen by 9 respondents as a heavy workload but towards the end of the project they found that this process was valuable in ensuring that progress in the project was maintained. Some respondents reported information searching during the preparation of the weekly course deliverables when they met face to face: “Often, in our meetings, we needed to find an answer to continue a group discussion. As such, a quick Google search was very helpful in moving our discussion along”.

**Collaborative Information Behaviour: Strategies**

There was evidence that students employed similar strategies in the different project groups. From the beginning, students divided the project into topics and assigned a responsibility to each group member based on his/her interest, subject knowledge, or past experience in similar projects. The respondents showed that students experienced what Talja (2002) described as a strategic sharing as they planned searching and sharing of resources that were found to be relevant. A respondent mentioned the typical strategy students would follow in project-based courses as: “In every group research project I have done here, the basic information needs of the project are discussed and split up at the beginning. Then each member is assigned a research task. Over the course of the project the tasks may change from one member to another but the work is always split up so that everyone can do research elsewhere without the group being redundant”. As this and other responses indicate, the group strategy is dynamic and changes during the duration of the project. Another student described it as: “I always start with individual research, then group sharing, re delegation of research tasks, then more individual research”. The strategy can be assigning a topic for each member or assigning a different information channel for each member while looking for related information on the same topic; in the words of one respondent, “If we were looking as a group we would often be searching for the same information but from different sources, so either different company websites, or one person more website based while the other focused on journal articles etc…”

**Collaborative Information Behaviour: Information Sources**

Respondents showed their preference for electronic resources as first choice. A respondent commented: “As an engineering student I want the most cutting-edge information. I rarely look for information in print because I usually believe that there will be something more up to date on the internet. I look at print for fundamental engineering information, but when it comes to specifics it has to be the most recent. I guess my style would be use the internet, mostly the databases. First I will go to Wikipedia to get a broad understanding of the topic that will help me use the search engines more effectively. Then I use the databases provided by the engineering Library. I then look through
patents using freepatentsonline.com. I try to look for standards, but usually only after they are mentioned in a paper. Many students referred to Wikipedia as a starting point for their research; they would then follow the links in these articles. Respondents mentioned that if they could not find the required information online, they preferred to contact the project client (as a part of the assignment each group was assigned a “real” client) to ask where to find information. In the words of one respondent: “I typically tried to find information online. I searched and skimmed and as I found things that were useful I stored them to be reviewed later on. If I couldn’t find information electronically I usually tried calling one of the project contacts”.

Collaborative Information Behaviour: People as Information Channels
Students mentioned that they used other group members as information channels based on the assigned topic for each member. The weekly meetings were seen to be a major factor in these collaborative activities in addition to the use of electronic file sharing tools and email messages. Many respondents referred to the project client representative as their primary information channel to get necessary information about the project problem and solution. Also students mentioned people with “expertise” or a “speciality” in the field to approach for relevant information that could help them during the project. As one student mentioned, “our group split up activities very evenly between internet research, contacting companies, and individuals who could be considered as "specialists" in their respective fields”

Collaborative Information Behaviour: Complexity of information
29 Students (representing 47.6% of respondents) identified the critical stage to be the beginning of the project when they collaboratively identified the information needed to start the project. This required them to meet and assign tasks in seeking background information about the project. In contrast, 17 students (representing 40.5% of respondents) described the selection of the solution to be the most critical part where they experienced more collaborative activities to evaluate the relevance of available methods and solutions, and to decide what solution to select. 5 students (representing 11.9% of respondents) described understanding the subject of the project as the most complex task that required them to engage in more collaborative activities to define the information they would need because their engineering program to date had not provided them with the necessary knowledge of their topic. Division of labour as a strategy for almost all groups would be changed when a complex task was encountered. As one student expressed it as: “often group information searching occurred as a result of an unexpected road block. Thus, allowing all four group members to search for the same answer, covering more material faster.” Another student described collaborative activities during the project in these terms: “When we searched for information as a group, we were usually all looking for different information. However, we each had different expertise in the project, and had (over the course of the project) each gained different background knowledge. Making a decision about what was good or bad information, and what to search for next once we found something interesting, wasn’t something easily done as an individual without the knowledge of the whole project. Working as a group face to face allowed us to discuss how the information we were finding would impact the rest of the project. Also, working as a group let us all find similar information, and if someone found some information about one thing that should be found out for everything to compare, it was easy to discuss this. Finding information that could be used to compare ideas was critical for our project. We worked most as a group when we were doing initial design, idea generation and comparison. The second half of the course, we weren't comparing ideas, so working individually to find information made more sense, with regular meetings to discuss the findings. Finally, as the final construction was ongoing, typically a group member might have an idea about some else' problems in their area of the project (we divided it), and look for information to help the other group member”.

DISCUSSION
The data collected in this first stage of the research reveals both similarities and differences among students in terms of how they collaboratively search for and use information. The survey as a data collection method near the end of the course was selected to allow students to recall their experience during the project at the same time frame they are writing and presenting the final report that includes their activities during the project and how they performed their assigned tasks as a group. Another reason to select the survey at the end of the project to avoid any interruption to the course and to give students a chance to reflect on what they have done during the project and not to examine what they are supposed to do.

Students encountered different information-related activities during their project, related to the various stages of the project itself; these activities comprised both individual and collaborative ones. Situational factors such as the structure of the group, along with individual members’ interest, were also detected as factors in collaborative information behaviour.

Contextual factors such as project topic were found to have a major impact on the nature of the collaborative activities that students undertook during their projects. The complexity of the project meant that students had to use different types of information sources and also encouraged them to approach other experts in the field to refer them to the relevant information as students perceive these experts
to have more subject knowledge and professional expertise. The tendency of engineering students to approach people as information channels emerged in many responses and is consistent with previous studies of engineers’ information behaviour (Leckie, 1996; Hertzum & Pejtersen, 2000; Hertzum, Anderson, Anderson, & Hansen, 2002; Pinelli, Bishop, Barclay, & Kennedy, 1993)

The responses to open ended questions provided many additional indicators that were not considered during the study design such as: how a group reached agreement on the relevance of an information source to be used in the project, and the importance of visits as information channels: “Although the group may have resisted some of the advice their human resources gave them, they soon realized that the advice was in actual fact extremely beneficial. When discussing the options available to the team with respect to hardware that could be useful for their designs, we thought about going physically to the part-suppliers to speak to experts in the field. The team initially thought that they could just as easily get the needed information from the internet, so no such trip was necessary. Finally, after not much success, the team decided to go to three different stores to speak to the employees and browse through the available merchandise. The progress that was made on the designs from that one trip was more than what had been achieved in multiple meetings.”

Students used different criteria to select the relevant information to their projects; availability of information in electronic format to them was seen to be an important factor as one student commented “I came into some resources that may be useful to my project but if they are not available to me online or through my library, I look for an alternative available resource even it is of less quality or less relevance; I do not have that much time for this project as I have many other courses”. Students also mentioned that they did not question the relevance and quality that was given to them by the project client or by the experts they approached as they saw them as trusted sources. The role of trust from peoples as information sources was clear and consistent with previous studies (Hertzum, 2002; Hertzum, Anderson, Anderson, & Hansen, 2002)

CONCLUSION

The results of this study supports the literature that signifies the development in information behaviour studies from a reductionist view of the individual information user to an acceptance of social interaction and different contexts that dynamically change. The information user is no longer seen as a passive receiver of information, but actually plays an active role in contextualizing.

The study results show that the project as the learning task including its tasks, roles, and expected outcomes has an effect on students’ information behaviours and their selected information sources and channels. It has been noticed that different project stages and the characteristics of the information need were major factors on how students seek and use information individually or as a group. The study also shows that complexity of the project as a learning task that was designed in similar constraints to real-world engineering project required students to spend a considerable part of their work time seeking, searching and using information. Similarity of engineering students’ information behaviour with professional engineers was considerably noticed particularly in their preferences to approach peoples as information channels.

This study is an example of studies in Information behaviour in context, demonstrating the importance of taking into account many factors or variables that are seen to affect individuals’ information-related activities such as problem situations, tasks, and roles. The work or learning task is regarded as a major factor that affects information behaviour which means that understanding information behaviour cannot be isolated from the work task

The research is ongoing, and the second stage is already under way where data are collected through semi-structured interviews with 8 students who are enrolled in the same course in the consequent year. Each student will be interviewed 4 times in different stages of the project to capture the learning dimension of students’ experience and whether it affects their collaborative information behaviours.

ACKNOWLEDGEMENTS

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