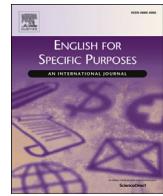


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# Role and genre expectations in undergraduate case analysis in Information Systems



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## ABSTRACT

This study examines case analysis writing in the field of Information Systems (IS), focusing on the roles students adopt in their writing and the functions that these roles perform. Previous research on case analysis in business has found that adoption of specific roles, such as business consultant or manager, is important in case analysis writing. In this study, we investigate role expectations in IS case analysis assignments across a 4-year IS curriculum, and students' performance of roles in writing in one IS course. We examined case analysis prompts from six courses as well as an interview with an IS faculty informant to identify roles expected in case analyses across an undergraduate IS curriculum. Secondly, we examined student writing in one IS course to examine students' performance of the expected roles. Results showed that students are expected to perform a wide range of roles, and that some roles included multiple distinct functions. In addition, prompts were arranged in many assignments in ways that structured a case analysis genre. Lower-graded analyses showed an over-reliance on reporting information from the case and on displaying disciplinary knowledge. Implications for teaching and incorporation of case analysis in information systems and business administration programs are discussed.

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## 1. Introduction

The discipline of Information Systems (IS) focuses on the interface between technical aspects of information technology and non-technical aspects of business management (Westfall, 2012). In IS education, a common assignment is case analysis. Drawing from business education, case analysis is used as a way to motivate students to actively participate in experiential learning (Kreber, 2001; Smith, 1997), help students develop higher-order reasoning skills (Cappel & Schwager, 2002), encourage problem-solving and decision-making skills (Easton, 1982), and bring the complexities of real-life situations into the classroom (Hackney, McMaster, & Harris, 2003). Previous research in business writing (e.g., Forman & Rymer, 1999a, 1999b; Freedman & Adam, 1996; Freedman, Adam, & Smart, 1994; Nathan, 2013) has found that in order to successfully write case analyses, students need to adopt specific roles, or personae, in their writing, such as a business consultant or manager.

The present study draws on this previous research on business case analysis writing, most of which has investigated writing by graduate students, and extends it to undergraduate writing in the field of Information Systems. We investigate the

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roles that students are expected to perform in case analyses across a 4-year IS curriculum, and students' performance of these roles in writing in one IS course.

## 2. Literature review

### 2.1. Information Systems

As a discipline, IS focuses on using computers and information technology tools to generate, process, and distribute information so that businesses or organizations achieve their objectives effectively and efficiently. Writing is important in professional IS work, and although writing skills are some of the most requested by employers, a gap still exists between employer expectations and IS graduates' skills (Liu & Murphy, 2012). The Association of Information Systems' 2010 undergraduate curriculum guidelines state that it is "impossible for an IS professional to perform effectively in any organizational role without excellent oral and written communication skills" (Topi, Valacich, Wright, Kaiser, Nunamaker, Sipior, & de Vreede, 2010, p.21), and previous research has recommended that IS faculty take responsibility for helping students improve their written communication skills (Merhout & Etter, 2005). Thus, it is vital for IS students to learn to write disciplinary texts, such as case analysis, and IS faculty need to be aware of expectations in order to more effectively teach students to write these texts.

### 2.2. Case method

IS education has many commonalities with business education, such as the use of cases. Instead of lectures, students are presented with case studies describing a company, its background, and/or its employees; highlighting problems encountered by the company or product; and, sometimes, the solutions considered. Cases are often factual, reporting on actual businesses, but some are fictional; however, they always present an objective account of a realistic business situation. The most widely-known approach to using cases in business education is the Harvard case method (Leenders & Erskine, 1989), in which students analyze a case and write an analysis of the case including their solution to the problems presented in the case. This written analysis then becomes the foundation of an in-class discussion of the case in which students defend their solution to the case. The written analysis is given various terms in practice and in the literature, such as *case study*, *case write-up*, *case report*, or (the term used here) *case analysis*. Although the Harvard case method has been influential in business education, adaptations and other approaches to using cases exist, with considerable variation between different contexts and cultures (Nathan, 2013).

The use of case-based writing assignments has been found to enhance learning in IS courses (Pomykalski, 2006; Sirias, 2002), and as such, cases also play an important role in IS education (Hackney et al., 2003). The *Journal of Information Systems Education* has been publishing teaching cases since 2002, with a 2003 special issue dedicated to cases for IS courses. IS cases are typically written based either on the writer's own first-hand experiences (often during consulting engagements) or on information gathered from published reports about a company. Students respond to prompts that ask them either to analyze issues retrospectively, such as *What went wrong and why?* or *What steps could have been taken to prevent these problems?*, or to make suggestions about what a decision maker *should do* moving forward (Cappel & Schwager, 2002, p.289). Rather than focusing solely on business, IS cases typically focus on technologies as they are used in businesses and for business purposes (Cappel & Schwager, 2002).

### 2.3. Case analysis genre

In the field of business communication, research has suggested that the business case analysis is not just a series of responses, but rather a relatively stable genre with recurring stages (e.g., Forman & Rymer, 1999a, 1999b; Freedman & Adam, 1996; Freedman et al., 1994; Nathan, 2013). Because the fields of business and IS are closely related, we draw on previous descriptions of business case analysis as a benchmark for better understanding IS case analysis as a potential genre.

Although previous research has suggested that the business case analysis is a genre, the question of whether it is a professional or pedagogical genre has been debated. While some see it as a simulation of real-life business writing (Mauffette-Leenders, Erskine, & Leenders, 1997), others describe it as resembling no kind of actual workplace writing (Forman & Rymer, 1999a). Forman and Rymer describe the case analysis as a purely pedagogical genre whose function is secondary to the main activity of the in-class case discussion. Freedman et al. (1994) describe case analysis as one step in students' process of entering a professional community; however, they also found that case analysis in classroom assignments lacked much of the ambiguity and complexity found in real companies, concluding that case analysis writing "is and must remain radically distinct from workplace writing" (p.221) as it is grounded in the rhetorical exigencies of the classroom.

Previous studies on case analysis genre have focused largely on two related aspects: roles that student writers are expected to perform, and genre stages of case analysis.

#### 2.3.1. Roles

Previous studies of case analysis in business generally agree that students are expected to enact various roles in case analysis writing. A role can be thought of as a textual identity that the writer adopts through their writing. This corresponds to what is known in rhetoric as *first persona*, or the persona that the author projects to the audience. For example, Freedman et al. (1994, p.202) note that in case analysis assignments, "students were expected to adopt the roles of management

consultants offering specific recommendations for action to a board of directors about a situation described in the case." Similarly, in their textbook on case analysis writing, [Mauffette-Leenders et al. \(1997\)](#) state that in a case analysis, students should assume a position, such as marketing manager, and give a response that is appropriate to that position.

In a single case analysis, however, writers may need to perform multiple roles. [Forman and Rymer \(1999a\)](#) found that when writing business case analyses, students were indeed expected to perform multiple roles, requiring an understanding of not only individual roles, but how to connect roles within the analysis. In their study, Forman and Rymer identified the roles of *Problem Solver* (defines significant problems in the case and proposing and analyzing solutions), *Manager* (shows "readiness to act in business situations" (p.115) by making logical recommendations and developing implementation plans), and *Disciplinary Thinker* (applies relevant course material to the case, showing understanding of disciplinary theories, tools, and principles). Of these three, however, only Manager can truly be said to be a role, or persona that the author projects to the audience. On the other hand, solving problems and thinking in disciplinary ways are not roles that an author adopts, but rather functions that an author performs in their enactment of a role. For example, in enacting a manager role, the author might perform the function of developing an implementation plan.

Much of the previous research on roles in case analysis has found that students have difficulty adopting roles other than a student role. [Freedman et al. \(1994\)](#) found that although students were to adopt a management consultant role, they had difficulty moving out of their role as a student, envisioning their audience as the professor and other students rather than the management of a company. Rather than making recommendations, they were constrained by the need to draw on the course content, enacting a student role focused on knowledge display. [Forman and Rymer \(1999a, p.122\)](#) found that students' "motivation to display disciplinary knowledge" restricted their analysis of the case and their development of solutions. [Nathan \(2013, p.63\)](#) points out that "rather than adopting explicit consultancy roles, writers generally appeared to act in their 'real' role as students addressing the lecturer audience." This difficulty of students to adopt non-student roles may reflect the fact that, as a genre, case analysis mimics activities performed in an industry context, but yet is still firmly grounded in a pedagogical setting, resulting in what [Wardle \(2009, p.774\)](#) calls a "mutt genre" with conflicting audiences and purposes.

### 2.3.2. Genre stages

In terms of the generic structure of the case analysis, some information can be gleaned from business textbooks. [Gist \(1972\)](#) advises that marketing case analyses should begin with a problem statement, followed by an analysis containing sub-headings, and lastly recommendations. [Mauffette-Leenders et al. \(1997, p.109\)](#) provide a "case report checklist" specifying a title page, table of contents, executive summary, issue statement, data analysis, alternatives analysis, recommendations, action and implementation plans, and exhibits. [Freedman et al. \(1994\)](#) found that executive summaries and appendices were common textual features, and that case analyses often contained headings and sub-headings.

[Forman and Rymer \(1999a\)](#) more explicitly link genre stages with role performance. They characterize case analysis as a problem-solution genre, with major stages of *analysis* and *recommendation*. In the analysis stage, the Problem Solver role is evoked to identify problems and propose and analyze possible solutions. In the recommendation stage, the Manager role is prominent in deciding the best solution and devising an implementation plan.

Similarly, in a survey of undergraduate and graduate business genres, [Zhu \(2004\)](#) found that written case analyses generally contained 1) an analysis of the current situation, 2) an identification of problems, 3) an analysis and evaluation of alternative approaches to solving the problems, 4) a discussion of specific recommendations for solving the problems, and 5) a justification for the proposed solution. While Zhu did not connect these stages to roles, the generic structure outlined does seem to correspond with [Forman and Rymer's \(1999a\)](#) analysis (1, 2, 3) and recommendation (4, 5) stages.

[Nathan \(2013\)](#) identified *orientation*, *analytical*, and *advisory* moves as obligatory in business case analyses. The orientation move often took the form of a title page, introduction, or executive summary. The analysis move used disciplinary knowledge and applied it to the case. Last was the advisory move, in which the student makes a recommendation based on the previous stages. Different from Forman and Rymer's characterization of case analysis as a problem-solution genre, [Nathan \(2013\)](#) found that overt problem identification did not occur in most of the texts he analyzed. In addition to these obligatory moves, Nathan found other stages that were not consistently performed, including critiquing an analytical tool (methodology), describing options and alternatives, summarizing, reflecting (lessons learned), and giving supplementary supporting evidence (references and appendices).

Although this previous research has shed light onto the roles that students are to adopt and the genre stages of business case analysis, the majority have focused on graduate-level writing, and all have focused on case analysis in the field of business. [Ellet \(2007\)](#) notes that the writing of a case analysis, including the roles that students are to perform, varies depending on the field, stating that "a marketing case requires you to think as a marketer, not a strategist or manufacturing manager" (p.19). As such, the roles that students are expected to perform in case analyses in Information Systems may vary from those in other fields.

In the present study, we investigate the roles that students are asked to perform in IS case analysis assignments and whether these align with recurring genre stages. We also examine students' performance of these roles in case analysis writing. The research questions for the present study were:

1. What roles and functions do IS case analysis assignments require students to perform? Which are students asked to perform more frequently? Are there any patterns in which roles and functions students need to perform, and do these correspond with genre stages?

2. In written case analyses, to what degree do students perform the roles and functions they are asked to perform? Are there any patterns in how students perform these roles and functions?

### 3. Methods

#### 3.1. Data sources

The study was conducted in an undergraduate IS program at a branch campus of an American university in the Middle East.<sup>1</sup> Data were gathered as part of a larger study of disciplinary literacy development conducted at the university. As part of the larger study, we collected instructional materials and student writing from all the IS courses offered at the university. We also interviewed the four full-time IS professors teaching in the program and followed 22 IS students for four years.

For this paper, we draw on the reading materials (the case studies that students read), assignment descriptions for case analysis assignments, and students' case analysis writing. In order to contextualize and inform our understanding of how cases and case analysis are used in this IS program, we conducted additional interviews with an IS professor about IS case analysis and what is expected in students' responses.<sup>2</sup>

In line with the expectations of the IS discipline, enhancing students' oral and written communication skills for future professional use is highly valued in the IS program at this university. Among the three undergraduate programs at this institution, the IS program requires the most writing and faculty show concern for the writing skills of the students, putting great effort into helping the students develop their writing skills. Among the assignments that students do in this IS program, case analysis is one of the most prominent. According to one IS professor we interviewed, "case studies form the backbone" of his course and the IS program. Cases are used to help students develop "writing skills, presentation skills, analytical skills, and working as a team to solve problems." In total, six courses in the IS curriculum use cases.

Although this IS program uses cases as part of its pedagogy, it does not strictly follow Harvard case method. Students' case analyses are structured around analysis assignments, some of which come from course textbooks while others are designed by the professors based on technology-related cases from professional publications. The case analysis assignments generally contain a series of one to seven prompts about the case, to which the students are to respond. There is considerable variation in the product of the case analysis assignment; while all courses include an in-class discussion (and two courses require only discussion), some courses ask students to also do a written case analysis (three courses), an oral presentation (three courses), and/or a video (one course).

#### 3.2. The study

Case analysis was used in six IS courses in this IS program: IS 1, 2, 3a, 3b, 4a, and 4b.<sup>3</sup> From these six courses, we analyzed 35 separate case analysis assignments. Each case analysis assignment consisted of a case study text and a number of prompts to which students would respond. Most assignments contained multiple prompts (the number of prompts ranged from one to seven). In total, these 35 assignments contained 128 prompts. Some prompts contained a single question, while others contained multiple questions to which students were to respond in a single answer. Because each prompt required a single answer (no matter how many individual questions were contained in a single prompt), our analysis uses prompt as the unit of analysis.

To gain a better understanding of what is expected in IS case analysis, we drew on our interview with an IS professor. He stated that the objective of case analysis in IS is "to analyze a business scenario where IT is important" and in which "IT is there, and a business problem is there." He stated that to analyze a case, students need to "synthesize a case" and do "problem solving." He stated that in their case analysis, students need to perform the steps of "analyze the situation", "apply the knowledge from the course", "think about the situation and possible solutions for this situation", "look at how the technology was applied and how it could have been better applied", and "look at individuals and how individuals handle situations [...] from an IT management perspective".

To answer the first research question, we examined the case analysis assignments from the six IS courses that made use of cases. In our analysis, we differentiated between roles, which correspond to real-life roles, and functions, which are actions that a role takes. Our analysis made use of categorical content analysis, in which data are reviewed recursively to identify categories (Murray, 2009). We began our analysis with role categories discussed in previous studies, including *Manager* (Forman & Rymar, 1999a) and *Consultant* (Forman & Rymar, 1999b; Freedman et al., 1994; Nathan, 2013), and function categories that were identified in previous studies, such as *identify problems* and *think disciplinarily* (Forman & Rymar, 1999a), and those indicated in the interview with the IS professor: *analyze the situation*, *synthesize the case*, *apply knowledge from the course*, and *do problem solving*. We added additional roles and functions as they emerged from the data. The authors initially coded 50% of the data together to establish categories of roles and functions, then coded the remaining data independently.

<sup>1</sup> The IS program at the international branch campus followed the same curriculum as the main campus in the US.

<sup>2</sup> We interviewed all of the faculty in the IS program, but we learned the most from the professor who taught IS 2, whose interview data we present. The responses from this professor are consistent with those of other faculty.

<sup>3</sup> Numbers refer to the year in which the course is taught. For example, IS 1 is an introductory course for first-year students.

**Table 1**  
Roles and functions identified in IS case analysis.

Roles	Functions
Student	Reporting Comparing options Synthesizing Applying disciplinary knowledge Applying case information to other contexts
Consumer Consultant	Considering own use of a technology Identifying problems Evaluating Making recommendations
Manager Researcher	Making an implementation plan Gathering and analyzing data

No new roles or functions were identified in the remaining 50% of the data. Inter-rater agreement was  $\kappa = .75$  for complete agreement (i.e., when multiple categories were identified for a single prompt, both raters identified all of the same categories) and  $\kappa = .85$  for partial agreement (i.e., both raters identified at least one of the same categories). Differences in coding were discussed until consensus was reached. From the data we coded, we identified 5 roles and 11 functions, listed in Table 1 and described in more detail in the Results section.

To answer the second research question, we examined two written case analyses produced by 11 students in IS 2.<sup>4</sup> Case Analysis 1 involved six prompts about [Munro and Huff \(2008\)](#), a factual case published by the Ivey School of Business titled “STARS Air Ambulance: An Information Systems Challenge.” Case Analysis 2 had seven prompts about [Reimus \(1997\)](#), a Harvard Business Review fictional case titled “The IT System That Couldn’t Deliver.” We divided the case analyses produced by the 11 students into higher-graded case analyses (A grades;  $n = 6$ ) and lower-graded case analyses (B grades or lower;  $n = 5$ ). Comparison of higher-graded and lower-graded student writing has been done in previous studies of academic writing (e.g., [Hyland & Milton, 1997](#); [Lee, 2008a, 2008b, 2010a, 2010b](#); [Miller, Mitchell, & Pessoa, 2014](#); [Miller & Pessoa, in press](#); [Wu, 2007](#); [Wu & Allison, 2005](#)), and is thought to highlight the types of writing that are valued.<sup>5</sup>

Student responses to the prompts were coded for roles and functions, taking into consideration the expected role and function in each prompt, how the students responded to each prompt, and how language use enacted the roles and functions students adopted. The specific roles and functions and the criteria for identifying them are described in the results section. At times, a student responded to a given prompt using multiple expected and unexpected roles and functions. When that happened, we assigned multiple codes to the student response. As with the analysis of the case analysis assignments, we coded 50% of the students’ case analyses together for roles and functions, then coded the remaining data independently; inter-rater agreement was  $\kappa = .53$  for complete agreement (all roles and functions in a student’s response were identified by both raters) and  $\kappa = .83$  for partial agreement (at least one role and function in a student’s response was identified by both raters). Differences in coding were discussed until consensus was reached. In addition to identifying which roles were used, we also calculated the number of words devoted to each role and function as a proportion (percentage) of each student’s response to each prompt.

In the next section, we first present the findings from the analysis of roles and functions in IS case analysis based on the prompts across the IS curriculum, followed by the analysis of the student writing in the IS 2 course.

## 4. Results

### 4.1. Roles and functions in IS case analysis prompts

In our analysis of the IS case analysis assignment prompts, we identified a total of 11 functions grouped into five roles: Student, Consumer, Consultant, Manager, and Researcher. Below, we describe each role and associated functions in detail.

The Student role positions the writer as a student who demonstrates an understanding of the case and of course concepts, and performs functions that reflect the case analysis as a pedagogical task. The Student role had five functions: reporting, comparing options, synthesizing, applying disciplinary knowledge, and applying case information to other contexts. The first three made use of only information stated in the case, while the latter two made connections between the case and other information.

Prompts for *reporting* most often asked students to report or paraphrase information that was explicitly stated in the text. For example, students were asked “What is the benefit of the *Scan It!* data to Stop & Shop?” (IS 4a) about a case which stated, “The scanner resulted in three positive trends for Stop & Shop,” followed by explicit reference to the three benefits of the *Scan It!* software data. Prompts for the *compare options* function asked students to go beyond reporting by comparing two options

<sup>4</sup> Although there were 21 students enrolled in this course, we had complete data for these 11 students.

<sup>5</sup> We do, however, acknowledge that there may be other factors that impact students’ grades, such as linguistic accuracy or content knowledge. To the best of our knowledge, this professor’s values in student writing are consistent with those of other IS professors, though there could be some variation.

explicitly stated in a case. For example, one case presented two different software implementations by two companies, and asked students to “Compare and contrast the self-service implementation between Wipro and MBH” (IS 3a). Adding a further level of abstraction, the prompts for *synthesizing* required students to combine multiple pieces of information from the case to produce something new. For example, a prompt in IS 4 asked “How does Google’s information systems strategy support its business strategy?” about a case that describes Google’s information systems and business strategies separately, but does not discuss relationships between them. Synthesis prompts often asked students to “discuss” information in the case in order to reach a conclusion not explicitly stated in the case, for example: “Discuss the system integration solutions at UPS. How do they help UPS integrate new technologies?” (IS 3a).

The remaining two functions of the Student role required students to draw on information from outside the case. One was to apply disciplinary knowledge such as theories or concepts discussed in the textbook or in class, such as “Review the concept of ‘private industrial networks’ and describe how Elemica illustrates many features of such a network” (IS 4b). Another function required students to apply information from the case to a new context; for example, after reading a case describing information technologies at the Wimbledon tennis tournament, students were asked “What other sporting events might benefit from the technologies used at Wimbledon?” (IS 1).

Prompts for the Consumer role asked writers to consider how they do (or would) use the technologies described in the case, as in, “Would you be more likely to follow a health program if it was offered on your mobile device?” (in response to a case about a mobile health technology) (IS 1). This was the only function of the Consumer role.

In the Consultant role, the writer adopts the role of a management or IT consultant brought in to evaluate and identify problems in the company, its employees, and their actions, and to recommend future actions to take. Accordingly, the Consultant role had three functions: evaluate, identify problems, and make recommendations. The *evaluate* function involved evaluating the company or its actions, and included words such as “evaluate,” “assess,” or “measure,” such as in, “How would you assess the level of maturity of Stop & Shop’s use of analytics?” (IS 4a). Prompts were coded as eliciting function of *identifying problems* when they asked students to state *problems, difficulties, disadvantages, failures*, or what was *wrong* in a company’s actions, such as in, “What was wrong with the way the project was set up and managed?” (IS 2) or “What were the main reasons for the project’s failure?” (IS 3b). The final function was *making recommendations*, in which the student acting as a Consultant had to consider the best course of action for a company, as in, “What should TJX have done to prevent [the security breach] from occurring?” (IS 4b). This function often made use of modals such as *can, could, should, and will*.

The Manager role asked students to adopt the persona of a manager of a company in order to make an implementation plan, such as in, “Assume you were a manufacturer of sporting goods and wanted to use Zynga as a marketing platform. How would you use its social character to extend the reach of your campaign?” (IS 4b) or “If you were CIO at Johnson & Johnson Philippines, how might you convince the corporation to invest in a project you designed?” (IS 1). This contrasts with the Consultant role in that a Consultant makes recommendations to a company, while the Manager role is an insider in the company who makes decisions and takes action, rather than making recommendations to others.

The final role was Researcher. To adopt this role, the writer must gather and analyze data external to the case. For example, following a case about companies that do real-time, targeted online advertising, one prompt was:

Pay a visit to your favorite portal and count the total ads on the opening page. Count how many of these ads are (a) immediately of interest and relevant to you, (b) sort of interesting or relevant but not now, and (c) not interesting or relevant. Do this 10 times and calculate the percentage of the three kinds of situations. (IS 4b)

#### 4.2. Frequency and patterns of roles and functions

Overall, the number of prompts per case varied among courses (see Table 2), with the highest being IS 2, which had six prompts for one case and seven prompts for the other. IS 3b had the lowest number of prompts per case, averaging under three prompts each.

The most commonly occurring role was the Student role, and the most common function was reporting (see Table 3) which alone accounted for over 20% of all function instances across all roles. Although the reporter function was the most common and appeared in every course, it was typically used by itself in IS 1, while in later courses it was combined with other roles to both report and analyze the case in response to a single prompt. For example, a prompt in IS 1 was: “Who provided information for the systems analysis report for the new system?”, which only required students to locate and report the name of the person who was explicitly named as the one who provided the information. In IS 4b, however, reporting was combined with other roles, such as in: “What role does Zynga’s customer relationship management system have on its success to date? What are its limitations?”. The first part of the prompt required only reporting of explicitly stated information, as the role of

**Table 2**

Number of cases and prompts analyzed in each course.

	IS 1	IS 2	IS 3a	IS 3b	IS 4a	IS 4b	Total
Cases	8	2	5	6	7	7	35
Prompts	26	13	18	16	29	26	128
Prompts per case	3.25	6.50	3.60	2.67	4.14	3.71	3.66

**Table 3**

Distribution of roles and functions in case analysis prompts in each course.

Role	Function	IS 1	IS 2	IS 3a	IS 3b	IS 4a	IS 4b	Total
Student	Report	9	1	3	5	5	10	33
	Compare	0	0	1	1	0	0	2
	Synthesize	5	3	2	5	8	2	25
	Apply disciplinary knowledge	1	5	5	1	13	7	32
	Apply case to new context	2	0	1	0	1	0	4
Consumer Consultant	Consider how they would use the technology themselves	3	0	0	0	0	0	3
	Identify problems	2	3	4	2	2	4	17
	Evaluate	0	1	0	2	1	1	5
Manager Researcher	Make recommendations	3	5	1	1	5	3	18
	Make decisions and develop plans	1	0	2	0	1	2	6
	Collect and analyze data	0	0	0	1	0	2	3
Total		26	18	19	18	36	31	148

Note: Total of all function instances is greater than the total number of prompts because some prompts required multiple functions.

Zynga's customer relationship management system is explicitly stated in the case text: "The company relies heavily on its [customer relationship management system] to improve user retention and increase collaboration among its gamers," allowing the student to respond with an answer such as *Zynga's customer relationship management system has helped it to improve user retention and increase collaboration among its gamers*. However, the second part of the prompt ("What are its limitations?") asks students to adopt a Consultant role to identify problems of the system, which are not stated as explicitly in the case.

The Student role's function of applying disciplinary knowledge to the case was the second most common function, also representing over 20% of the total function instances, and also occurring in every course. However, this function was used differently depending on the source of the case. In courses that made use of non-textbook cases, such as IS 2, which used cases from Harvard Business Review and Ivey Publishing at the Ivey School of Business, two main publishers of business case studies, the function of applying disciplinary knowledge was often combined with other roles and functions. For example, one prompt in IS 2 asked "What was wrong with the way the project was set up and managed? What elements of project management and risk management were neglected?", combining the Consultant function of problem identification in the first question, and the Student function of applying disciplinary knowledge about project management and risk management in the second. On the other hand, in courses that used cases from the course textbook, prompts more often asked only for application of disciplinary knowledge, without combining this with another role or function, as in, "Which of the generic strategies does Lego appear to be using based on this case?" (IS 4a). The predominance of the application of disciplinary knowledge is understandable in textbook cases, since these cases are more overtly pedagogical materials designed to illustrate specific disciplinary concepts covered in the textbook, whereas cases published in, for example, Harvard Business Review are not designed to illustrate specific disciplinary concepts.

Two of the functions of the Consultant role, identifying problems and making recommendations, often occurred sequentially. For example, regarding a case about implementation of an e-commerce site at a company, students were asked "What concerns might shoppers have about their privacy? How would you advise Stop & Shop management to respond to these concerns?" (IS 4a).

In many of the assignments, there was a recurring order of roles and functions. Prompts that asked students to report or synthesize material from the cases generally appeared among the first in a sequence of prompts, followed either by other functions of the Student role that required more application, or by other roles. For example, in IS 1, prompts were divided into two sets, one under the heading "discussion questions," which asked for a Student role to report or synthesize information from the case, and the second set labeled "critical thinking questions", which required either Consultant or Manager roles. For example, one discussion question asked "How did joining the dealerships with a common data network help Volvo Cars Belgium improve customer satisfaction?", requiring reporting of factual information explicitly stated in the case. On the other hand, a "critical thinking" question about the same case asked "How could information systems be used to compile an overall customer-approval rating for a dealership?", requiring students think beyond what was reported in the case and to adopt a Consultant role to make a recommendation. These two stages correspond loosely to the orientation and the recommendation stages identified by Nathan (2013).

A similar pattern continued throughout many of the case analysis assignments in other courses. For example, the following prompts were in sequence in IS 4a:

1. How did the information systems and the organization design changes implemented by Knudstorp align with the changes in business strategy?
2. Which of the generic strategies does Lego appear to be using based on this case? Provide support for your choice.
3. What advice would you give Knudstorp to keep Lego competitive, growing, and relevant?

In this sequence, the first prompt asks students to synthesize two pieces of information from the case (i.e., information about the design changes and information about the changes in business strategy), while the second prompt asks students to apply

disciplinary knowledge from outside of the case but from within the course (i.e., the “generic strategies”, which were discussed in the textbook), and the last prompt then asks students to think beyond the information presented in the case by taking on a Consultant role in order to make a recommendation. This sequence corresponds to [Nathan's \(2013\)](#) three major obligatory moves of orientation, analysis, and advisory, respectively. Through the sequence of prompts and their expected roles, the assignment seems to scaffold the generic structure of the case analysis.

This also resonates with the IS professor's description of how students should perform a case analysis:

“Understanding the situation is important. [The students] have to read the case [and] describe the situation in their own words. That's the first step in the case analysis assignment. Then having made us all conscious of the fact that they have understood the situation, I have them look at how the technology was applied and how it could have been better applied. I also try to make them look at alternate technologies. This will always be an open ended thing. [...] The other thing in case analysis is to look at individuals and how individuals handle situations.” (IS Professor)

By having students report or synthesize information at the beginning of the prompt sequence in a case analysis, students can show their understanding of the “situation” before moving on to more analysis of the case, and lastly to more open-ended recommendations, following the sequence of moves described by [Nathan \(2013\)](#).

Thus, in a number of ways, the IS case analysis does seem to be a genre with recurring stages, and does seem to closely follow the generic structure of the business case analysis genre identified in previous research. However, we also saw cases where other roles were included that did not fit into previous descriptions of business case analysis. The Consumer role appeared in only one course, IS 1, and asked students to think about how they themselves would use a product, requiring them to only consider their own behavior, with little analysis of the case itself. In addition, this role did not seem to be part of a recurring genre structure. Similarly, the Researcher role, which required students to gather and analyze data, also did not fit into a recurring genre structure. This role appeared only in two upper-level courses, IS 3b and IS 4b, and only appeared a total of three times throughout the curriculum. It is interesting to note that these two roles, Consumer and Researcher, appeared only in case analysis prompts in textbooks, not in assignments designed by faculty.

In contrast, the two case analysis assignments in IS 2 employed 6–7 prompts that structured the analysis in a way that corresponded in many ways to the structure described in previous studies of business case analysis. In addition, this was one of the courses that asked students to produce a written case analysis. For these reasons, we analyzed students' writing in this course to evaluate the extent to which students meet the expected roles.

#### *4.3. Use of roles in student writing*

Our analysis focused on students' case analyses written in response to the two case analysis assignments in IS 2. The prompts and the roles and functions for the first case analysis were:

1. What is the importance of information systems to STARS? [Student: reporting]
2. How would you characterize STARS' competitive strategy? Where does STARS add value for their stakeholders (customers, suppliers, employees)? Apply Porter's five forces model in your response. [Student: synthesize, apply disciplinary knowledge]
3. How successful has their strategy proven to be? What other types of IS competitive advantages might STARS seek going forward? [Consultant: evaluate, make recommendations]
4. Develop a list of three or four most critical challenges facing the new CIO. Include your ideas for how Khan should tackle each challenge. [Consultant: identify problems, make recommendations]
5. For his upcoming meeting with the CEO, what should the CIO's objectives be? How can the CIO gain the trust and support of the CEO? [Consultant: make recommendations]
6. What should the CIO do to control the current practice of departments contacting their “favorite IS staff member” when they need technical assistance? [Consultant: make recommendations]

The first two prompts required the Student role, with the first prompt asking for information explicitly stated in the case and the second prompt asking students to synthesize information in the case in order to “characterize STARS' competitive strategy,” while also asking students to apply disciplinary knowledge using Porter's five forces model. The third prompt required a Consultant role to evaluate the success of the company's strategy. The fourth prompt again asks for a Consultant role to identify problems in the company (“challenges facing the new CIO”) and to make recommendations (“how Khan should tackle each challenge”). The fifth prompt asked for a Consultant role by making recommendations. The final prompt also uses a Consultant role by asking the student to make a recommendation. This sequence largely corresponds to the obligatory genre moves described by [Nathan \(2013\)](#): orientation (prompt 1), analysis (prompt 2), and advising (prompts 3–6).

The second case analysis assignment had the following prompts:

1. Discuss the importance of the new IT system and how it would provide competitive advantage to Lenox. [Student: synthesize, apply disciplinary knowledge]

2. Do you think the new IT system for Lenox can be classified under the term 'enterprise system' – Yes or No? Justify your response. [Student: apply disciplinary knowledge]
3. What has gone wrong with the development and installation of Lenox's new IT system? Do not simply reproduce the points outlined in the case, but think critically about actions that were taken or not taken in the case. [Consultant: identify problems]
4. What was wrong with the way the project was set up and managed? What elements of project management and risk management were neglected? [Consultant: identify problems; Student: apply disciplinary knowledge]
5. What different system development methodologies were available to Lenox and discuss briefly the tradeoffs of each from the perspective of project success. [Student: apply disciplinary knowledge]
6. Who is responsible for assuring IT success in Lenox and at what segments in the project (formulation, development, and implementation)? Consider the actions of all the named individuals and what they need to do to improve matters. [Consultant: make recommendation]
7. Summarize the lessons learned (include the top five) from Lenox's new IT system implementation drawing parallels from other well-known IT systems implementation failures. [Student: synthesize, apply disciplinary knowledge]

The first prompt asked student to synthesize information in the case about how the new system provides a competitive advantage for the company, while applying a technical definition of *competitive advantage* discussed in the class. The second prompt asked students to apply disciplinary knowledge to the case by applying the concept of *enterprise system*. The third prompt brought in the Consultant role by asking students to identify problems in the development and installation of the new IT system. Interestingly, the professor notes to students here that responding to the prompt requires more than "simply reproduc[ing] the points outlined in the case". The fourth prompt asked students to again identify problems, but also brought back the Student role to apply the disciplinary concepts of *project management* and *risk management*. The fifth prompt

**Table 4**

Roles and corresponding functions found in the analysis of IS case analysis writing.

Role: Function	Criteria	Example from student text
Student: Reporting	Information drawn only from the case, and presented without interpretation, inference, analysis, or comparison, often in narrative form and in the order in which it was presented in the case.	'Lifexpress' was assembled to let the agents of the company understand and study their customers financial status by using laptop at anytime and anywhere the agent wanted. Also to categorize and investigate the company's most suitable policies, and to analyze and compare how Lenox stacked up against competitors' ratings and performance, and generate all the necessary paperwork on site to consummate a sale, as it mentioned in the case by Byron Reimus.(Tamam, Case Analysis 2)
Student: Synthesizing	Information drawn only from the case, but makes interpretations or shows analysis of the information, often combining information from multiple places in the case.	Also, STARS was initially set up in the region of Alberta, but spread to more regions (also mentioned above), <b>which shows that STARS was able to grow and expand; they did so only because they were successful.</b> (Serena, Case Analysis 1)
Student: Applying disciplinary knowledge	Application of IS concepts and theories, mostly from the course lectures or textbook and using disciplinary jargon	<b>Porter's five forces model is a model used for industry analysis.</b> The model was developed by Michael E. Porter, of Harvard Business School in 1979 who presented a framework that represents an industry having been powered by the five forces. (Yasmine, Case Analysis 1)
Student: Applying case information to other contexts	Compares the context in the case with a context not discussed in the case	<b>CISCO organization serves as a good example (of another business that executed a similar process)</b> where it has realized its IS and overall business goals by business processes, and then developed these processes through technology improvements and enterprise architecture. (Najwan, Case Analysis 1)
Consultant: Identifying problems	Identifies problems in the company, its plans, or actions of its employees	The failure of the system in Lenox has several reasons. The <b>fundamental problem here was</b> that the implementation has been looked at as a technical solution and not a business solution. (Asia, Case Analysis 2)
Consultant: Evaluating	Makes evaluations of the company, its plans, or actions of its employees using evaluative language	For their support activity, having an Emergency Link Centre (ELC) was <b>the right step to make</b> in order to make them locate the helicopters, hence accomplishing their primary activities. (Hala, Case Analysis 1)
Consultant: Making recommendations	Recommends actions the company or its employees could take, often using modals ( <i>should, could, can, might</i> )	On the other hand, there are other types of IS competitive advantages that STARS <b>can</b> seek in the future. They <b>can</b> work on making their servers host multiple applications instead of only one and merge multiple systems. (Halim, Case Analysis 1)

Note: The Consumer role, Manager role, Researcher role, and Student function of comparing options were not found in the student writing produced in response to the IS 2 prompts.

continued with a Student role by asking students to apply the various system development methodologies that had been discussed in the course. The sixth prompt then asked students to return to a Consultant role to make recommendations as to what each individual in the organization should do. The final prompt again returned to the Student role by asking students to summarize what has been learned from the case, and also to apply material discussed in class, other IT systems implementation failures. Although not as clear as the first case analysis, some elements of Nathan's (2013) obligatory moves of case analysis seem to be evident: orientation (prompt 1), analysis (prompts 2 and 5), and advising (prompt 6). In addition, prompt 7, about lessons learned, corresponds to an optional move identified by Nathan (2013), reflection.

In our coding of students' responses, we identified criteria for each role and function combination. For example, we coded a response as a Student role with *reporting* function when the student recounted information that was presented explicitly in the case text without making any interpretations, inferences, analysis, or comparisons of his/her own. We coded a student response as a Consultant role with *making recommendations* function when the student adopted the role of Consultant by suggesting what the company or its employees should do, often using modals such as *should*, *could*, *can*, or *might*. See Table 4 for criteria and examples of roles and functions.

We first examined students' inclusion of the expected roles and functions, and found that students in both groups did include the expected roles and functions to a large extent, with the higher-graded texts including slightly more of the expected roles and functions than the lower-graded texts. Of the nine expected role/function combinations in Case Analysis 1, the lower-graded texts included an average of 7.6 ( $SD = 0.55$ ; range 7–8); of the ten expected roles/functions in Case Analysis 2, the lower-graded texts included an average of 6.8 ( $SD = 1.30$ ; range 5–8). The higher-graded analyses included an average of 7.8 ( $SD = 0.75$ ; range 7–9) expected role/function combinations in Case Analysis 1, and an average of 7.7 ( $SD = 1.03$ ; range 6–9) in Case Analysis 2.

Looking at the specific roles and functions that students used (see Table 5), we found that students in both groups tended to use the Student role's functions of reporting and applying disciplinary knowledge even when these were not required by the prompt. However, comparing the higher-graded and lower-graded analyses, we found that the lower-graded analyses tended to use the reporting function to a greater extent, both in terms of number of students and the portion of the response that used this function. For example, there were some cases where the lower-graded texts used reporting instead of an expected function, such as Prompt 1 in Case Analysis 2 where it was used instead of synthesizing:

In *The IT System that Could not Deliver* case, a new IT system was developed which is Lifexpress. Lifexpress is a computer system that forms a link between a company's agents and their customers which [eases] the means of communication between both. It would provide a competitive advantage in a way that it shortens the length of the time needed for the original sale to be done in a matter of hours instead of weeks, which is considered an important benefit to target customers. (Hala,<sup>6</sup> Case Analysis 2, Prompt 1)

This student's response mostly reports information directly from the case text, which explicitly stated that "Lifexpress [is] a sophisticated computer-aided system that enabled the company's more than 10,000 agents nationwide to conduct business with their customers" and that the advantage of the system was that "a [sales] process that had taken anywhere from four to six weeks could now be completed in a few days or, in some instances, a matter of hours." In contrast, a higher-graded analysis synthesized information from the case in order to explain and elaborate:

Lifexpress was designed to catalyze processes that previously took four to six weeks to just a matter of few days or hours. This lowers costs of the business processes. It gets rid of the paperwork, making everything digital and electronic, reducing basic hassles. Lifexpress was a tool for Lenox to develop new IT features to differentiate its products and services, and to manage regional and global business expansion; it was developed to link inter-enterprise information systems by the internet and intranet to support strategic business relationships with its customers and contractors. These are all forms by which Lifexpress as an IT system aimed to give competitive advantage to Lenox, as it would improve productivity and help the sales force close on more new policies. (Serena, Case Analysis 2, Prompt 1)

Although this student also reports the information about the amount of time savings, she then synthesizes information from the case in order to elaborate and explain what the benefits of this are (e.g., "lowers the cost of the business process", followed by examples).

We also found that both the higher-graded and lower-graded analyses made use of the Student function of applying disciplinary knowledge even when it was not required; however, again, the lower-graded analyses did so to a greater extent. For example, in the sixth prompt of Case Analysis 1, students were to take on a Consultant role by making a recommendation. Accordingly, a higher-graded case analysis answered:

The CIO should try to create a helpdesk and keep following if it's being properly and efficiently used. This would make all the employees go through the helpdesk if they need anything, therefore, this will definitely stop the departments from contacting their "favorite IS staff member" to help them fix technical problems. This helpdesk isn't available at the organization now, which makes the departments always call the IT guy who always works with them. (Hafim, Case Analysis 1, Prompt 6)

<sup>6</sup> All student names used are pseudonyms.

**Table 5**

Number and portion of responses devoted to each role/function combination for each prompt.

	Case Analysis 1				Case Analysis 2			
	Lower graded		Higher graded		Lower graded		Higher graded	
	Ave. %	Number	Ave. %	Number	Ave. %	Number	Ave. %	Number
<b>Prompt 1</b>								
S: Reporting	<b>78.0</b>	<b>5/5</b>	<b>70.6</b>	<b>6/6</b>	74.5	4/5	23.0	3/6
S: Synthesizing	0.0	0/5	17.5	2/6	<b>0.0</b>	<b>0/5</b>	<b>24.1</b>	<b>4/6</b>
S: Appl disc knowl	20.4	4/5	9.6	4/6	<b>42.5</b>	<b>3/5</b>	<b>52.3</b>	<b>6/6</b>
S: Appl new context	0.0	0/5	0.0	0/6	0.0	0/5	27.2	1/6
C: Evaluate	0.0	0/5	19.3	1/6	0.0	0/5	0.0	0/6
C: Identify problems	0.0	0/5	5.9	1/6	0.0	0/5	46.8	2/6
C: Make rec	14.1	2/5	58.7	1/6	0.0	0/5	0.0	0/6
<b>Prompt 2</b>								
S: Reporting	43.7	2/5	0.0	0/6	0.0	0/5	0.0	0/6
S: Synthesizing	<b>27.6</b>	<b>1/5</b>	<b>50.4</b>	<b>3/6</b>	70.2	1/5	0.0	0/6
S: Appl disc knowl	<b>74.4</b>	<b>5/5</b>	<b>78.0</b>	<b>5/6</b>	<b>86.0</b>	<b>5/5</b>	<b>100.0</b>	<b>6/6</b>
S: Appl new context	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
C: Evaluate	3.1	1/5	9.4	1/6	0.0	0/5	0.0	0/6
C: Identify problems	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
C: Make rec	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
<b>Prompt 3</b>								
S: Reporting	53.3	2/5	41.0	3/6	28.5	3/5	22.3	3/6
S: Synthesizing	22.7	1/5	7.3	1/6	0.0	0/5	14.2	1/6
S: Appl disc knowl	24.5	2/5	8.4	1/6	0.0	0/5	32.4	2/6
S: Appl new context	10.8	1/5	0.0	0/6	0.0	0/5	0.0	0/6
C: Evaluate	<b>44.0</b>	<b>3/5</b>	<b>24.3</b>	<b>6/6</b>	0.0	0/5	0.0	0/6
C: Identify problems	4.9	1/5	14.9	1/6	<b>82.9</b>	<b>5/5</b>	<b>75.7</b>	<b>6/6</b>
C: Make rec	<b>43.5</b>	<b>4/5</b>	<b>48.5</b>	<b>5/6</b>	0.0	0/5	0.0	0/6
<b>Prompt 4</b>								
S: Reporting	42.1	1/5	16.6	1/6	24.7	2/5	23.2	1/6
S: Synthesizing	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
S: Appl disc knowl	37.1	1/5	0.0	0/6	<b>80.0</b>	<b>2/5</b>	<b>33.2</b>	<b>2/6</b>
S: Appl new context	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
C: Evaluate	12.7	1/5	0.0	0/6	0.0	0/5	0.0	0/6
C: Identify problems	<b>36.8</b>	<b>5/5</b>	<b>33.9</b>	<b>6/6</b>	<b>72.7</b>	<b>4/5</b>	<b>80.4</b>	<b>6/6</b>
C: Make rec	<b>44.8</b>	<b>5/5</b>	<b>59.9</b>	<b>6/6</b>	0.0	0/5	14.0	2/6
<b>Prompt 5</b>								
S: Reporting	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
S: Synthesizing	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
S: Appl disc knowl	0.0	0/5	0.0	0/6	<b>76.2</b>	<b>4/5</b>	<b>74.3</b>	<b>4/6</b>
S: Appl new context	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
C: Evaluate	0.0	0/5	0.0	0/6	33.4	1/5	0.0	0/6
C: Identify problems	0.0	0/5	8.6	1/6	0.0	0/5	43.6	3/6
C: Make rec	<b>100.0</b>	<b>5/5</b>	<b>96.0</b>	<b>6/6</b>	31.0	1/5	46.9	3/6
<b>Prompt 6</b>								
S: Reporting	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
S: Synthesizing	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
S: Appl disc knowl	46.4	2/5	0.0	0/6	70.9	1/5	0.0	0/6
S: Appl new context	0.0	0/5	0.0	0/6	0.0	0/5	0.0	0/6
C: Evaluate	0.0	0/5	18.6	1/6	0.0	0/5	0.0	0/6
C: Identify problems	0.0	0/5	32.2	1/6	12.1	1/5	0.0	0/6
C: Make rec	<b>81.5</b>	<b>5/5</b>	<b>91.5</b>	<b>6/6</b>	<b>83.4</b>	<b>5/5</b>	<b>100.0</b>	<b>6/6</b>
<b>Prompt 7 (Case 2 only)</b>								
S: Reporting					0.0	0/5	0.0	0/6
S: Synthesizing					<b>69.3</b>	<b>3/5</b>	<b>55.7</b>	<b>5/6</b>
S: Appl disc knowl					<b>74.3</b>	<b>3/5</b>	<b>55.0</b>	<b>3/6</b>
S: Appl new context					0.0	0/5	0.0	0/6
C: Evaluate					0.0	0/5	0.0	0/6
C: Identify problems					52.1	1/5	56.4	1/6
C: Make rec					17.0	0/5	100.0	1/6

Note: S refers to Student role. C refers to Consultant role. Bold indicates expected role/function combinations. Ave. % indicates the average portion of a response devoted to each role/function combination. Number indicates the number of students (out of five for the lower-graded group, out of six for the higher-graded group) who included each role/function combination in their response.

The student assumes the expected Consultant role by outlining a recommendation as to what the CIO should do and the ways that this would benefit the company. On the other hand, a lower-graded analysis responded:

STARS shall establish a centralized and effective “helpdesk” system to address all the IT issues that may be raised by both the internal and external customers. As defined in (5), a helpdesk is ‘a resource designed to provide end users with

information and assistance regarding problems with computers and related devices or software.' (Asia, Case Analysis 1, Prompt 6)

While the proposed solution, a helpdesk, is the same as the higher-graded response, a large portion of the lower-graded response is in a Student role, applying disciplinary knowledge by defining what a help desk is, based on an external source, rather than adopting a Consultant role to describe the recommended solution and how it will benefit the company.

It is interesting to note that we saw a change in the layout of the documents from Case Analysis 1 to Case Analysis 2. In Case Analysis 1, all students included the prompts in their analysis write-up; however, in Case Analysis 2, the professor encouraged students to make their case analysis less like individual responses to separate questions, and more like a single, cohesive text. This may indicate that the professor sees the case analysis as a single genre, rather than as only a series of responses to prompts. In the second case analysis, all of the students did so by either including the responses to multiple prompts into sections of the analysis, or by not indicating the prompts at all. One of the lower-graded students organized his Case Analysis 2 using headings, grouping prompts 1 and 2 into an "Overview" section, prompts 3 and 4 in a "Situation" section, prompts 5 and 6 in a "Solution" section, and prompt 7 in a "Conclusions" section. Thus, again, we see that prompts organized the case analysis text similarly to the generic structure suggested by [Nathan \(2013\)](#), including the required stages of orientation, analysis, and advisory. Although the IS professor never commented explicitly on the structure of the case analysis as a genre, his encouragement for students to write one continuous analysis document, rather than a series of disconnected prompts and responses, combined with the sequencing of prompts in a way that corresponds with previous research on the generic structure of the case analysis seems to have scaffolded students' writing of the case analysis as a genre.

## 5. Conclusions & implications

In the present study, we investigated the roles and functions that students are asked to perform in IS case analyses, as well as students' performance of these roles in writing. Our analysis showed that there are many roles that students are asked to assume when writing IS case analyses. Our analysis extended that of [Forman and Rymer \(1999a\)](#) by differentiating between *roles* and the *functions* that roles perform, with some roles performing multiple functions independently and in combination. Although Forman and Rymer indicated only a single "Disciplinary Thinker" role that could reflect the type of thinking that a student might do, our Student role included a number of separate functions through which a Student role can be enacted, including reporting and synthesizing information from the case, comparing pieces of information in the case, applying disciplinary knowledge to the case, and applying information from the case to another context. We also found roles that did not appear in previous studies of business case analysis, such as Consumer and Researcher.

Our analysis of the sequencing of prompts suggests that there may be a recurring order of prompts, beginning with a description of the case, followed by application of disciplinary knowledge, then analysis of the case to identify problems, and finally recommendations for what the company should do. This sequence comports in many ways with the descriptions of business case analysis genre described by [Forman and Rymer \(1999a\)](#) and [Nathan \(2013\)](#). However, we did notice some differences between these previous descriptions of case analysis and our data. In our analysis, we found that students were often asked to report information from the case; however, [Forman and Rymer \(1999a\)](#) did not find a role that reported information from the case itself. They comment on this, saying that a lack of reference to the case resulted in texts that were "disjointed", "undeveloped", and without coherence (p.126). This reflects the tradition in business case analysis of not retelling the case and instead focusing only on interpretation and analysis, also mentioned in [Mauffette-Leenders et al.'s \(1997\)](#) textbook on business case analysis writing. From the present analysis, however, we saw that reporting was expected in many prompts (e.g., "Invensis covered a broad range of services. Remind us briefly of all the services.", IS 3b), especially at the beginning of a case analysis. This could potentially be a result of the technical nature of IS, resulting in the need to state all of the important aspects of the case up-front.

Similarly, we found that most case analysis assignments included at least one prompt that asked students to identify problems, such as, "What has gone wrong with the development and installation of Lenox's new IT system?" (IS 2), and that this was often part of a problem-solution pair of two Consultant functions (identifying problems and making recommendations), such as "Develop a list of three or four most critical challenges facing the new CIO. Include your ideas for how Khan should tackle each challenge" (IS 2). These occurred either in the same prompt or in adjacent prompts. Although [Forman and Rymer \(1999a\)](#) describe the basic structure of case analysis as problem-solution, [Nathan \(2013\)](#) did not find a problem identification move in case analyses in most of the business fields he analyzed (marketing, project management, management accounting), concluding that "development of marketing plans or the implementation of projects does not require the writer to identify any specific problem" (p.62). The prevalence of problem identification in the present study could be related to the focus of IS on ways that information technologies are used for business purposes. That is, while marketing may be done in a company even without a specific problem to solve, IT solutions are typically implemented in order to solve a problem. Thus, from the present research, we see that a problem-solution orientation seems to be a key element of the IS case analysis genre.

Although there were recurring sequences of roles, we did encounter some roles that did not occur as frequently, such as the Consumer role and the Researcher role. These roles were found only in one or two courses, appeared infrequently, and only in textbook assignments. We suggest that although the IS case analysis does seem to be a genre with recurring stages, it is an emerging one that may not necessarily be reflected in IS textbooks.

Similarly, we also suggest that although IS faculty may have implicit knowledge of a structure for the IS case analysis, this is often not made explicit to students. Having an awareness of which roles and functions are expected in IS case analysis and how prompts make use of these roles and functions to structure the IS case analysis genre is important for both faculty and students. In our interviews and discussions with IS faculty, we did not see any indication that the IS case analysis is taught as a genre, with specific stages and corresponding roles and functions. Yet, in our interview with the IS professor, his description of the IS case analysis showed an order in which students should do an analysis, which seems to be reflected in the order of the prompts, moving from a Student role to report information from the case in order to demonstrate comprehension, to a Consultant role to identify problems and make recommendations. This order also appeared in the sequencing of prompts in other IS courses as well. Yet, the IS professor indicated that such a structure was not part of instruction to students, and in reviewing assignment descriptions, we saw that instead of describing this progression to students, case analysis assignments are regularly presented only as a series of prompts to which students are to reply, rather than a coherent genre.

Although there were many instances of prompt sequences that scaffolded the case analysis, there were also instances of those that did not. For example, we saw that the Student role was combined with the Consultant role in the fourth prompt in IS 2, Case Analysis 2: "What was wrong with the way the project was set up and managed? What elements of project management and risk management were neglected?". While the first part of this prompt asks students to assume a Consultant role in order to identify what was wrong with the project's set up and management, in order to address the second part of the prompt, students need to adopt a Student role by referring to the specific elements of project and risk management, which were topics covered in the course. Combining these multiple roles into a single prompt could be confusing to students, and does not help in structuring the genre of the case analysis. Instead, we would recommend that IS instructors create separate prompts for different roles, and give students explicit instructions about which role they should adopt. For example, the above prompt could read: "Imagine you are a consultant hired by Lenox to identify what went wrong with their project. What problems were there in how the project was set up and managed?". Case analysis prompts can also be deconstructed with students, making it clear to students which roles and functions they should use in their responses, and how these correspond to the generic structure of a case analysis. This may also lessen the overuse of the reporting and other Student functions in places where it was not expected, as was seen in the lower-graded analyses in this study.

Being explicit about expected roles and functions can lessen the potential tension that exists between professional and pedagogical tasks and outcomes in the disciplines. Although students are indeed completing an assignment for a course for which they receive a grade and are expected to display their Student role with the function of applying disciplinary knowledge in many instances, they are also expected to act as consultants and managers that has to do more with the professional world. As [Zhu \(2004\)](#) indicates, these two spaces do not have to necessarily be in tension:

The school and professional forums do not have to be separated in terms of physical space, but instead may be juxtaposed and co-existent. This means that instead of operating in two separate forums where roles may be more clearly defined or perceived, business students on many occasions may have to function and communicate in two forums simultaneously in courses and/or assignments which require writers to take on both learner and professional roles. (p.130)

Our study shows that some students were able to "negotiate, juggle and perform" these roles in effective ways by combining roles to provide a thorough, analytical, and thoughtful answer to a question. We argue, however, that unless this is made explicit to students, the majority of students will have difficulty with such tasks.

If faculty are aware of the roles they want students to assume, the functions to be performed, and the ways that these map onto genre moves, assignments can be designed to tap into these to ensure the effective completion of this disciplinary task. The case analysis can begin with students performing a Student role to contextualize the analysis and show their understanding using prompts asking for the reporting or synthesizing of case information. This can be followed by analysis using either Student functions of applying disciplinary knowledge to the case or applying the case to another context, or the Consultant functions of identifying problems or evaluating the company. This can then be followed by advisory using prompts that ask for a Consultant role to make a recommendation, or a Manager role in which the student shows what they would do as manager of a company. Although this was followed in some instances, such as Case Analysis 1 in IS 2, it was not in others. Giving context before introducing an analysis is part of good writing practice, making the case analysis write-up more coherent and developed, as advocated by [Forman and Rymer \(1999a\)](#). Once students have done a few case analyses with individual responses to prompts, the instructor can then use the prompts to guide the structure of students' responses, without students including them in the document, as the professor of IS 2 did. Such scaffolding could help students to begin to see case analysis as a coherent genre, rather than a series of prompts.

The present study does have a number of limitations. First of all, this study had a relatively small sample size, with the analysis of case analysis prompts limited to those in six courses in an IS curriculum at a single university, and the analysis of written case analyses limited to writing by eleven students in one course. Future research should, in particular, investigate writing in a wider variety of courses and by more students, including IS graduate students. In addition, although we investigated students' performance of roles and functions in their writing, we do not know about students' perception of the writing task or their intentions in their responses. Future research should include interviews with students in order to better understand students' understanding of the roles, functions, and moves of case analysis.

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