Abstract

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As artificially intelligent products become ubiquitous with twenty-first century life, the need arises to understand these devices, specifically as to when and why humans deem them useful and necessary. Little research currently exists that rhetorically explores the relationship between AI and human beings. As such, two studies were conducted for this dissertation that integrate an operationalized definition of rhetorical situation with that of context. The first, a rhetorical analysis of advertisements for commercially available artificially intelligent products – an automated vacuum cleaner, a smartphone, and non-player characters in a video game – seeks to identify the rhetorical nature of the interaction between human and AI as shown through visual representations of their relationships. The results of this study indicated that, in some circumstances, the interaction between the human and AI was rhetorical. Furthermore, it suggested that AI could exhibit two different forms of intelligence - contextual and rhetorical - simultaneously, separately, or independently. The second, a research study, asked participants to interact with three forms of AI, identical or similar to the products described in the first study, and to report back on their interactions. Participants were asked to describe and rank the intelligence of the AI within the products tested. The results of the second study supported those of the first and also showed that user expectations of AI in terms of contextual versus rhetorical intelligence greatly influenced their perceptions of the AI. The results of both studies highlight the importance of integrating rhetorical approaches into the development of AI products, studies, and research.
The Human, the Machine, and the In-between: Identifying Rhetorical and Contextual Intelligence in Artificially Intelligent Programs and Devices

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Dedication

For my parents, Janice and Joe Gulick, who instilled in me a love of learning, for Abby and Wesley, who teach me something new every day, for Ed, who reminds me to take a break every once and a while, and for my grandmother, Rachael Gulick, who unfortunately passed away during the completion of this dissertation but who taught me more about what it means to be intelligent than she ever knew.
Biography

Christin Gulick Phelps was born in Putnam Valley, New York, and raised in Garner, North Carolina. She graduated from Guilford College in Greensboro, NC with a Bachelor’s Degree in Computer Information Systems. She then received her Master’s Degree in Technical Communication from North Carolina State University. She has almost two decades of experience as a professional web designer and programmer. Her research interests include human-AI interaction, online community building, web development, digital genres, and video game narrative. She has a published, co-authored chapter on pervasive, location-based games and has presented at conferences such as the National Communication Association Conference, the College Conference on College Composition and Communication, and the Rhetoric Society of America Conference.
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Chapter 1

Introduction

In 1991, Lynette Hunter published an article entitled “Rhetoric and Artificial Intelligence.” In the article, she argues that the study and development of Artificial Intelligence (AI) is ripe for rhetorical criticism and analysis. She provides numerous examples of where arguments made for, within, and about AI can be, should be, and have been to minor degrees studied by rhetorical scholars. Indeed, she suggests that in the same way that rhetoric insists on context, the scholars and scientists that build and study artificially intelligent machines also have an inherent need to understand context (Hunter, 1991). However, if their understanding of context is incomplete in such a way that it does not acknowledge the rhetorical elements found within certain interactions between AI and human beings, then they inhibit the AI to only certain forms of interaction or, ultimately, to failure in more advanced discourse with humans.

Much has changed within the study and creation of artificial intelligence since Hunter made her case. When we swipe our customer ID cards at our local grocery store, somewhere a computer is analyzing our purchases to target appropriate in-store coupons alongside our receipts in an attempt to improve customer loyalty. Siri, the heavily advertised key feature of Apple’s iPhone 4S, will not only identify a restaurant nearby that meets your current food cravings but make you a reservation at a date and time you prefer. Artificially intelligent computers have become pervasive in the technical world. In a sense, they have become
interlocutors in our lives to such a degree that they have begun to engage us in ways that are apparently rhetorical. Thus, Hunter’s suggestion that rhetorical scholars direct some attention towards AI becomes even more pertinent, relevant, and important. In the 22 years since Hunter published her article, few rhetorical scholars have answered her charge. The scholars that do address AI in rhetorical research do so primarily by examining the arguments that the scientists who develop AI create rather than by analyzing the AI itself (see, for example, Zdenek, 2003). The reverse, where AI scholars begin incorporating rhetorical studies into their own research, has been addressed more since Hunter first made her argument (see Boden, 1998; Guerini et al., 2004; Moore and Paris, 1998; Ramchurn et al., 2003; Verheij, 2009). Many of these articles draw from rhetorical scholarship in an attempt to understand argumentation; however they do so in a very limited way by testing their theories using only artificial agents as the interlocutors and/or by restricting the rhetorical theories they reference.

For example, Guerini, Stock, and Zancanaro (2004) attempted to develop an operationalized definition of persuasion based upon their understanding of Perelman’s definition of the term. However, in order to make their definition plausible, they “prefer to narrow [Perelman’s] definition by considering action inducement only (while the ”large” definition involves behavior inducement)” (2004, p. 43). The authors do not ever identify the difference between action inducement and behavioral inducement, but based upon their use of the terms we can assume that action inducement requires the audience to respond with a physical action, whereas behavioral inducement does not.
Not only is this definition extremely limiting, but also by disregarding the behavioral aspect of persuasion the researchers are removing a primary and central component of rhetoric. Anyone can force someone to move, for example, in one direction using methods that are distinctly not rhetorical but contextual, such as bumping elbows on a crowded subway platform. Such an act would not be rhetorical because the intent by such an act would not involve the “art of persuasion” (see Burton, 2007). By divorcing behavior from action, I would argue you miss a significant component in understanding the rhetorical situation, as Bitzer (1968) defines it, and are relying on contextual, not rhetorical, factors in making your argument.

Guerini, Stock, and Zancanaro (2004) attempt to separate behavior and action because their purpose is to model, in graphical and algorithmic forms, persuasion. However, the rhetorical situation cannot and should not be turned into a modeled tree, where one action or statement leads to one branch and another to a different branch. The behavior of the rhetor and audience will be so dynamic that modeling it would be (and should be) impossible.

Rhetoric is, as Burton (2007) describes it, an art, and rhetorical situations will not follow the same preset path each time, even if those paths are intended to be dynamic. The rhetor, audience, and constraints – the three components of the rhetorical situation, according to Bitzer (1968) – will change, leading to different outcomes and different forms of persuasion. On the other hand, context (as will be discussed further in Chapter 2) consists of identifiable and measurable environmental, social, and historical factors that coexist with a conversation or interaction that do not influence or affect action or belief on the part of those
involved (see Consigny, 1974; Crowley et al., 2002; Davis et al., 2004; Dey, 2001; Hyland, 1998; Lucas, 1988; Maskery and Meads, 1992; Maskery et al., 1992; Schilit & Theimer, 1994; Schilit et al., 1994; Smeulders et al., 2000; Vatz, 1973). These factors will often remain the same from one similar context to the next. When you have an interaction in a kitchen, similar contextual elements will likely recur from one context to another. There will likely be a sink, lighting of some variety, tasks will often consist of preparing some sort of meal, etc. These elements, and corresponding related actions (using a knife to apply peanut butter to bread, for example) could be predicted and incorporated into a programmable understanding of what might occur contextually within a kitchen.

The research conducted by both rhetoricians and computer scientists has been limited in its applicability and scope. By engaging in a more involved rhetorical inquiry into AI, researchers and scientists would be able to examine in greater depth the situations within which AI and humans interact than has been done before, thereby providing greater understanding of the rhetorical relationship between the machine and the human, and what roles certain elements in that interaction play.

A case in point is Apple’s Siri. When the device was first revealed to scientists and experts in the field, they touted that Siri would revolutionize the way that we interact with our mobile devices. Jacob Aron published an article aptly titled “Your iPhone is listening” in 2011, right when the iPhone 4S, and Siri, were making their debut. He interviewed several experts on AI about the device, and many reveled in its advancements. However, they were quick to point out that the majority of the tasks that users will expect Siri to assist with are
social. So, they hoped that Apple would keep expectations realistic, since Siri “can’t answer esoteric questions, despite the fact that it can find you a good sushi restaurant nearby” (Blunsom as quoted by Aron, 2011, p. 24). Unfortunately, the expectations did exceed Siri’s capabilities, as articles such as “Siri, why aren’t you smarter?” (Pogue, 2012) and the headline at gadget site Gizmodo, “Siri Is Apple's Broken Promise” (as cited in Pogue, 2012) so aptly point out. Users challenged the intelligence of Siri not because she couldn’t locate a building nearby, but because “she” didn’t meet expectations. In other words, how Siri was perceived and judged by users ultimately determined the success of the iPhone 4S, not where Siri’s intelligence originated from or even the fact that her software marked a massive improvement in the world of commercially available artificially intelligent virtual assistants. The interaction between the user and Siri ultimately proved to be unsatisfying, perhaps on both sides, demonstrating that there is more to the interaction between a human being and an AI than interface and computation.

As I stated earlier, many scientists frequently conflate the concepts of context and situation, leading to greater difficulty in modeling a rhetorical situation accurately. Real-world interactions between human and machine often require the AI to act rhetorically, which requires actions and processing beyond a simple understanding of the AI’s context. As a result, rhetoric and rhetorical criticism can provide valuable data that computer scientists can use to fine-tune, advance, or re-evaluate existing algorithms and approaches involved in the study of human-AI interaction. It is important to note that this dissertation will not be debating or discussing whether or not AI is capable of acting rhetorically. Instead, it will be
examining the connection between rhetoric and context and, correspondingly, rhetorical intelligence (which will be defined more specifically in Chapter 2, but broadly can be considered the ability to act and react rhetorically) and contextual intelligence (similarly, the ability to act and react to one’s context). It will emphasize that the ability to act rhetorically and to possess rhetorical intelligence not only differs from the ability to recognize context and possess contextual intelligence, but that these abilities are crucial to the interaction between a human being and an AI and should be researched further. The results of this study suggest that users must either readjust their expectations with regards to the AI, or (less likely) that the AI must be able to possess and exhibit rhetorical intelligence in order for users to feel that the AI was able to successfully assist them and/or complete its task.

Understanding and recognizing the human-AI relationship must be made before any debate over whether or not AI is capable of engaging in rhetorical discourse, which is ultimately outside the scope of the research being discussed here but will be acknowledged in the concluding comments.

Hunter’s argument that rhetorical studies, rhetorical criticism, and AI studies all should recognize their communal reliance on context is important, but seems not to have made much impact on current AI and rhetorical scholars. As Hunter states, “rhetoric is irretrievably social and historical. It has always insisted upon context” (1991, p. 318). The context that Hunter mentions here is the context that Computer Scientists are attempting to identify and recognize through programming. However, Hunter differentiates between context and rhetoric (and inadvertently the rhetorical situation), something that Computer
Science research involving context lacks. Existing research covering human-AI interaction often concentrates heavily on whether the AI or interaction works rather than why it works (see Blow et al., 2006; Burgard, 1999; Corbett, 2004). Although this approach is useful, it misses a crucial factor – the human factor – in the interaction. For example, Blow et al. (2006) studied human perception of artificial faces. They use Mori’s (1970) “uncanny valley” theory, which argues that there is a point at which too much realism in an AI robot becomes disturbing to a human being, to analyze approval ratings of smiles given by an artificial face. They did not ask why their participants considered the smiles pleasing, but rather analyzed the data based upon how wide a smile the AI presented to the human being.

In other words, they analyzed satisfaction with the AI against physical, measurable features rather than social norms or standards involved with the discourse. The analysis assumed physical justifications sufficient to explain responses to the AI’s smile and did not factor in emotional ones. What both Blow et al. fail to recognize is that situations where an individual is attempting to show joy to another individual can, in many cases, be considered rhetorical in nature. What else is going on in these situations? Could it be that the uncanny valley results not just from the person being uncomfortable with a machine being so lifelike and yet not lifelike enough, but also because the AI has begun a rhetorical interaction with the human and fails to meet expectations? Could the AI be recognizing and responding to contextual clues, but not to rhetorical ones, thereby acting at times inappropriately towards the human?

A growing field of study in Computer Science is attempting to understand the interaction between human beings and AI from a social perspective. The works, notably, of
Clifford Nass and Byron Reeves (the media equation) as well as Byron Fogg (persuasive technology) attempt to understand computers as social actors, and have to varying degrees succeeded in understanding how users treat computers socially. These scientists are attempting to ask questions very similar to those posed within this dissertation, but their research, however, fails to acknowledge anything rhetorical about the interactions between AI and human beings. Thus, the research, though relevant and informative to computer scientists, doesn’t really provide a complete understanding of the interaction.

A gap, then, exists between social AI research and its practical, operationalized application. AI scientists and programmers understand that computers can be treated socially, but actually applying this knowledge to algorithms and in practice is lacking. Ultimately, then, when these scientists report results of studies of user interactions with AI, this knowledge and theoretical backing is largely overlooked or ignored. This may be because although Nass, Reeves, and Fogg all acknowledge the connection between human beings as social creatures and the attempt to mold AI to fulfill a social role to meet the basic human need to interact socially, they fail to draw the connection between this need to be social, the persuasive role of technology, and rhetoric. Social actors being persuaded to act a certain way because of some need that arises is, by definition, a rhetorical situation (see Bitzer, 1968). Therefore, the fact that none of the research that addresses AI from a social or persuasive perspective recognizes the rhetorical situation, one that exists between the AI and the human and that leads to expectations in the human whether they realize it or not, leads to a big drawback and hole in the existing research. Scientists developing AI often regard the
social and persuasive elements as a secondary concern, spending more time on whether the AI works from a technical perspective than on understanding the interpersonal interaction between the human and the machine (see Hayes-Roth et al., 1999; Weizenbaum, 1966). If, however, they understand that these social and persuasive elements exist within a rhetorical situation which itself exists within the context they are already studying, more research involving rhetoric and AI should and will be conducted. Simply put, although context remains relevant to AI research, conflating the two terms context and situation assumes too much about certain elements such as the physical environment and too little about the abilities of the AI, its audience, and the interaction between them. For example, when someone asks a friend for their opinion on what they should do for fun this weekend, that friend is going to base their response on a myriad of factors amassed over a series of encounters over presumably many months or years. He or she will consider prior excursions that were enjoyable or not, the personal preferences of the inquisitor, etc. in making a recommendation. The interaction between these two people presents an exigence that can only be solved through rhetorical means. Relying solely on context would force the friend to refer only to the physical aspects of the different locations for which an excursion could be taken and basic, generalized information not tailored to the needs of the audience. Although some of the contextual elements would be relevant, such as the likelihood of rain, relying completely on contextual information in this case would not present a complete picture of what the inquisitor may actually be looking for. The friend needs to be able to make a convincing claim as to why certain events or activities would be enjoyable based upon what
they know about the asker, something that a contextually based approach would be incapable of doing.

**Understanding the Machine: A Closer Examination of Where Rhetoric Can Fit In**

Hubert Dreyfus argues in *What Computers Still Can’t Do* (his follow-up to the controversial *What Computers Can’t Do*) that the pursuit of artificial intelligence is a fruitless endeavor because experience is contextual. He explains that “intelligence requires understanding, and understanding requires giving a computer the background of common sense that adult human beings have by virtue of having bodies, interacting skillfully with the material world, and being trained into a culture” (Dreyfus, 1992, p. 3). Computers, especially those in the form of desktop computers due to their immobility, cannot engage the world like their human counterparts. Consequently, the software installed on those computers is limited in its knowledge of the world and of the individuals who might interact with it. In response, “recent developments in AI and robotics ... [take] to heart arguments to the effect that embodiment, rather than being coincidental, is a fundamental condition for intelligence” (Suchman, 2007, p. 230).

Dreyfus and Suchman believe that intelligence requires understanding and comprehending the world in the same way human beings do: by living in it. However, programmers often develop and design AI in such a way as to intentionally prohibit the AI from truly interacting with the world as a human analog. The role of artificial agents and robots is not as a human equal but as a human subordinate – as a tool, a means for
entertainment, an assistant, etc. Suchman herself states that “the common rhetorical positioning of software agents [is] as assistants to their human counterparts” (Suchman, 2007, p. 216). This role is often assigned to the AI purposefully since many users desire AI not for companionship but rather to assist them in achieving certain goals or completing certain tasks (Dautenhahn et al., 2005).

This reasoning suggests a series of questions supported by the literature on technology and artificial intelligence. For example, if we believe that “actions are always situated in particular social and material circumstance” then, “the situation is crucial to action’s interpretation” (Suchman, 2007, p. 176). Suchman then goes further, stressing that we must understand that “action is an emergent property of moment-by-moment interactions between actors and between actors and the environments of their action” (Suchman, 2007, p. 177). The interactions between actors Suchman describes here can be interpreted as a reference to the rhetorical situation, whereas the interaction between actors and the environments of their action could be interpreted as a reference to context. Thereby, we can assume that artificial intelligence is interpreted within the constraints of a situation and context, though Suchman does not use the term directly. This means that when we decide whether or not artificial intelligence is, per se, intelligent, we do so within and as a result of the given interaction with the AI. Therefore, the success of computer scientists may be measured not by their ability to transfer human intelligence into a machine but rather in their ability to identify and evaluate a situation and create a knowledge base appropriate for that situation AND context. Siri, for example, is designed to be an expert personal assistant. Ask
her to plan out a meal for dinner, and she can’t do it herself as she lacks the rhetorical intelligence to understand how to creatively create a delicious dish in response to the taste preferences of the diners – but she can find you a website on how to do it. Miller explains that “expert systems ... commodify … expertise as a programmable combination of knowledge and reasoning, detaching both from the expertise and judgment of human experts and making them impersonal, portable, reproducible” (Miller, 2004, p. 204). To a human, AI’s benefit lies not in its ability to repeat a given task, but in its ability to complete a given task to the expectation and satisfaction of the user. For an AI developer, thus, the goal becomes more than just understanding the task before the machine, but also the expectations and reception of the human and the ability to respond to both.

Herein lies the inherent disconnect behind AI research and practice and the understanding of how human beings interact with the AI. When studying the interaction between an AI and a human being, traditional computer science approaches will grant an understanding of the completion of the task (most likely as a series of complex computations), but provide very little insight into the expectations and satisfaction of the user. Recognizing this interaction as a series of computations and as a rhetorical situation, however, will allow researchers to study the interaction more thoroughly. It may contribute, I believe, especially to the discussion of strong versus weak AI.

Barbara Warnick explores and critiques Ray Kurzweil’s attempt to reinvigorate the discussion of what he refers to as “strong AI.” She looks at Kurzweil’s book, *The Age of Spiritual Machines* (2000), as well as the opponents and supporters of the book. Kurzweil,
she explains, “sought to predict the arrival of a singular event – the surpassing of human by machine intelligence – and to elevate the public’s view of AI by causing them to see its research within that frame” (Warnick, 2004, p. 152). Kurzweil succeeded in doing so, but in part resulting from the debate the book sparked rather than his actual argument. Kurzweil faced the problem of overcoming the rhetoric surrounding the term ‘artificial’ at the time – namely that it “is nearly always opposed to the ‘real’” (Warnick, 2004, p. 153). Warnick explains that “throughout the first four chapters of his book, Kurzweil works to reframe his readers’ perceptions of the conceptual relationship between human intelligence and AI” (Warnick, 2004, p. 154). He does so by associating “certain attributes with either human intelligence or AI and, by means of those associations, seeks to either diminish human intelligence or elevate artificial intelligence” (Warnick, 2004, p. 154). In other words, Kurzweil argued that artificial intelligence and human intelligence are two distinctly separate entities. To Kurzweil, artificial intelligence is superior in just about every way to human intelligence – it can adapt more easily, evolve faster, and be more efficient. Artificial intelligence research should not seek to reproduce human intelligence, but to create something better than human intelligence.

Indeed, in practice we see this attempt to be the case. Sean Zdenek introduces readers to virtual customer service agents. These agents “persuade users they are humanlike when they reflect (and promote) assumptions, sometimes deep-seated, about what it means to be human” (2007, p. 400). Often, they present a hyper-realized version of what it means to be human, emphasizing certain aspects and concealing others in an attempt to represent the
“perfect” customer service agent, an agent Zdenek points out is usually female. These agents attempt to recreate human-based customer service in an expert form – to create expert systems for interpersonal interaction and assistance. Kurzweil would argue this represents an improvement over a human actor in a similar role because the AI can be more focused in its task than a human. However, something Zdenek points out specifically, but Kurzweil seems to forget, is that even though these agents recreate the role a human being would normally fulfill, users treat them more as tools. Instead of being thought of as an improvement over the human, and in spite of the computer’s expert intelligence within this particular context, the computer is treated as inferior to the human (assuming, of course, that a human is superior to a tool). Warnick points out that “Kurzweil’s examples remind his readers that whether one considers a phenomenon to be intelligent and conscious depends on how one looks at it” (2004, p. 156). We can understand why this is the case if we consider the human-AI interaction a rhetorical situation. For example, an individual approaching a virtual customer service agent will generally do so with a goal in mind. If they approach it contextually, in other words asking for something such as the location of an item in a warehouse, the AI can satisfy the request quickly and efficiently to the satisfaction of the user. However, if that same individual is approaching the agent, and viewing the agent, in an assistant, human-analog role, then he or she may ask the agent for a product recommendation. This same AI, though it could excel at providing physical, contextual information to the user, will falter in this rhetorical situation. It does not have the capabilities to assess the needs and desires of the customer, evaluate the products based upon those needs and desires, and respond with a
tailored recommendation and convince the customer to purchase the product. In the first case, the customer presumably treats the AI as a tool whereas in the second the same AI is presumably treated as a human. The AI will successfully answer the customer’s question in the first example (weak AI), but likely fail to do so in the second (strong AI).

Kurzweil looks at AI as being superior to human intelligence because it is able to detach itself from the human experience and look at the world from a new vantage point. However, other scholars would argue that AI could not improve on human intelligence because human beings establish and frame that vantage point. As Feigenbaum and McCorduck explain, “these so-called intelligent machines won’t be as smart as humans ... they can’t possibly be; humans are teaching them everything they know” (Feigenbaum & McCorduck, 1983, p. 41). In other words, because human beings create artificial agents, and embed with them their own knowledge, these agents cannot be more intelligent than a human being. Scientists who adopt the “weak AI” philosophy don’t strive to recreate human intelligence because they believe that AI cannot “be” intelligent, in such a way that Kurzweil argues. Rather, these scholars argue that AI can act intelligently, to some degree mimicking a human being. However, if one is to act intelligently, one must convince his or her audience of the performance. Anyone who has ever seen a bad movie will agree that not all actors are capable of giving convincing performances, and the same applies to AI.

Kurzweil approaches AI from the “strong AI” viewpoint, an approach where AI should strive to always be better than the human. Ignoring, however, the human-AI interaction, as Kurzweil tends to do, highlights the difficulty in accepting or agreeing with
Kurzweil’s argument; this is one reason why the research proposed here will be important. Both the “strong AI” and “weak AI” positions indicate a stance toward the rhetorical nature of machine intelligence because they measure it against human intelligence, which is often rhetorical in its implementation. Yet Zdenek and Warnick argue that the goal of creating intelligence superior to that of a human should be less desirable than creating intelligence appropriate to the expectations and desires of the humans who will interact with it.

**Beyond Semantics: Situation versus Context**

The discussion of situation and context is a complicated one, but one worthy of consideration at the center of this dissertation. Most computer scientists will argue that in order for AI to be or to mimic intelligence, it must be context-aware. If, however, their concern lies with whether or not an AI “works” technologically within a given context, their research largely ignores a very important factor – the user. As Hunter points out, “the Turing test is not really a test for machine intelligence but a test for what human beings are willing to recognize as intelligence” (Hunter, 1991, p. 326). Miller (2001) agrees, explaining that “the Turing test is not a test of intelligence, as it has been taken to be in the computer community, but a test of rhetorical ethos, that quality of discourse by which we infer the character of our interlocutor” (p. 255). I would argue for taking Hunter’s statement a step further. The Turing test is not just for recognition, but rather for the construction of arguments. The AI must convince the user that it is intelligent and/or understand arguments or commands conveyed to it by a user. The human being, in turn, will make judgments
and/or perform an action based upon his or her perception of the AI. In other words, I would argue, and indeed this dissertation will argue, that the interaction between a human being and an artificially intelligent device exists within rhetorical situations, not just contexts. Although many individuals conflate the two terms, context and situation, there are distinct differences between the two that make BOTH valuable contributes to AI research.

Context is referenced by computer scientists to create the “intelligence” within AI (although there is much debate over what the term, in fact, refers to, as will be discussed further in Chapter 2). In essence, AI gathers information about its physical surroundings and whatever words may have been spoken to it (if the AI is capable of natural language processing), processes and interprets that information, then responds to the individual or situation in a manner that it determines is appropriate based upon a complex system of algorithms and interpretive mechanisms. How the AI identifies context, therefore, is crucial to its “understanding” of the world around it, and in combination with its algorithms and interpretive capabilities, forms what would best be considered its intelligence. However, as Suchman points out, “the project of designing intelligent artifacts… remains consistent with a tradition that treats separation and autonomy, rather than relatedness, as the mark of humanity” (2007, p. 211). The goal, in other words, of many computer scientists has been to create devices capable of autonomy. Suchman argues, as do I, that autonomy alone does not permit an AI to engage with a human being in such a way that satisfies the needs and expectations of the human being, which in many cases are elements of the interaction that remain unstated. To truly meet the needs and expectations of the human, the AI must become
a rhetorical interlocutor to the extent that an AI can do so. This dissertation is, in part, examining what this process may look like.

This dissertation will also attempt to show how the interaction between an individual and artificial intelligence (in both physical and software form) exists within a given context but also contains all the components of a rhetorical situation, thereby deeming the recognition of contextual elements for the AI insufficient. The purpose will be to examine what this distinction between context and situation means for practitioners of AI development and rhetorical scholars. For example, a programmer and/or designer will be able to better understand the interaction between an artificially intelligent device/software and users and, as a result, why a particular AI may have succeeded or failed in its implementation. For rhetorical scholars, understanding the nature of the interaction between AI and human beings will open up greater opportunities to research and discuss technology from a rhetorical perspective. This dissertation, essentially, replaces traditional variables in the concept of the rhetorical situation (a human audience, for example) with artificial ones (an artificially intelligent, mechanical audience, for example). Rhetorical scholars could, theoretically, do the same with other theories, methodologies, or practices with numerous practical and theoretical benefits as a result.

This dissertation, thus, will attempt to expand our understanding of human-AI interaction through a series of rhetorical analyses, rhetorical criticism, and a participant study evaluating and critiquing the interaction of human beings with different forms of AI. The research questions this dissertation will pursue challenge the assumptions of and
classification of AI within different contexts and situations within both rhetorical studies and AI research:

**RQ 1:** What expectations and preconceived notions do users have of AI?

**RQ 2a:** Do users rely on historical, social, and environmental contextual factors in explaining or making their attributions of intelligence to artificial systems?

**RQ2b:** If so, how?

**RQ3a:** Do users rely on information about audience, exigence, or constraint in explaining or making their attributions of intelligence to artificial systems?

**RQ3b:** If so, how?

**RQ4:** How do users balance and/or associate contextual factors (RQ2a) and rhetorical factors (RQ3a) when explaining or making attributions of intelligence to artificial systems?

The purpose will not be to identify where the intelligence of AI originates (through programming or the greater question of how human intelligence works) but rather to explore the interactions between users and different forms of AI. The dissertation will assume that where intelligence originates is not as important as how it is perceived, consequently judged, and finally ascribed or attributed to an AI based upon the expectations of the audience, as was suggested by the participant responses in C. R. Miller’s (2007) thought experiment to the fictitious AutoSpeech-Easy software.
Overview and Chapter Outline

This dissertation makes the case that the interaction between an AI and a human being is a rhetorical one, constituting a rhetorical situation as defined by Bitzer (1968). I suggest how and why we should recognize the interaction between AI and a human being as a rhetorical situation through an examination of the way individuals talk about AI and how they judge that AI’s intellectual capabilities. This is done in three different ways to triangulate the argument. First, I show how classic AI experiments and arguments actually represent examples of the conflation of the terms context and situation and how when we separate the two within these experiments, we can actually see how two different forms of intelligence (contextual and rhetorical) exist or fail to exist within the AI. I then examine recent advertisements on commercially available AI to show how they visually and metaphorically represent the rhetorical situation present when AI and human beings interact, and how they visually represent the need of the AI to respond rhetorically in given situations. This analysis and critique also provides the framework for evaluating the results of the interviews discussed later in the dissertation. It will suggest instances where rhetorical intelligence may not be necessary for the AI and where it is critical, which was then tested in the interviews. Finally, I discuss the results of a controlled experiment wherein individuals were asked to interact with different forms of AI and then participate in an interview to discuss their experience. Through an analysis of these interviews, I show how certain interactions between participants and AI signify rhetorical situations. Finally, I show how the results of this study can be used both practically and theoretically by multiple disciplines.
The following chapter overviews provide more specific details on how this paper will progress:

**Chapter 2 (Literature Review).** This chapter examines the existing literature on the rhetorical situation, context, and seminal works in AI. It begins by establishing an understanding of the rhetorical situation and its various components: exigence, audience, and constraints (Bitzer, 1968, p. 6). It then discusses several definitions of context and how those definitions and their usage would change when we consider a rhetorical situation as being a part of those contexts. Finally, it shows how seminal experiments and arguments in AI research, such as the Turing Test and Searle’s Chinese Room argument, provide examples of when AI exemplifies contextual intelligence but not rhetorical intelligence.

**Chapter 3 (Rhetorical Analysis).** This chapter offers a rhetorical critique of advertisements for popular products that integrate AI. It includes advertisements for all of the AI products or related products tested within the empirical portion of this study. It uses metaphorical and visual rhetorical criticism to analyze the advertisements to achieve three ends: (1) to show how the advertisements play off of and visually represent the interaction between human and AI, which allows us then, (2) to prove that the interaction between human and AI does, in fact, constitute a rhetorical situation, and (3) to use the analysis to develop a framework for then analyzing the interaction between humans and AI in the empirical portion of this study.
Chapter 4 (Design and Methodology). This chapter offers a brief explanation of the rhetorical approaches used within this study throughout chapters 4 and 5. I then detail the design of the study and procedures of the experiment and interviews conducted, including a discussion of prior published research that influenced the development and design of this study. The chapter concludes with a brief description of the AI involved in the test and basic demographic information about the participants.

Chapter 5 (Data Analysis). This chapter discusses the results of a study where individual participants were asked to interact with three different forms of artificial intelligence and then discuss those interactions through a structured interview. The three forms of AI tested were: a video game, an automated customer service agent, and an automated robotic vacuum cleaner. The chapter provides an extended description of the AI tested and then discusses the results of the interviews. It provides detailed accounts of what participants said and analyzes these accounts to show the rhetorical components within the interactions, within a particular context. The analysis shows that participants emphasized the rhetorical components of the interaction more in their description of the interaction than the contextual components, but their recognition of the contextual components was more direct, which suggests a subconscious need for the AI to act rhetorically. Screenshots and/or images of the tested AI are also included in this chapter.
Chapter 6 (Conclusion). This chapter connects the results from the four prior chapters into one coherent conclusion and understanding of the rhetorical nature of human-AI interactions. It suggests potential implications for this conclusion, including limitations, and offers suggestions for ways to apply the knowledge gained both theoretically and practically, such as ideas for future studies and ways in which programmers and designers can draw from the findings to improve the AI they create.

Implications and Conclusion

The results of this study will have far-reaching implications. I foresee great benefits for practical application. The study will provide an example of where rhetorical analysis can be used to better understand users of artificially intelligent devices and software. Specifically, by understanding the interaction between the two as a rhetorical situation, designers will be better prepared to understand users and their complaints about existing or future devices and be better able to make appropriately interactive AI. Additionally, designers and builders may be able to create or adjust documentation for AI to more appropriately address the users’ needs.

Beyond the practical, the theoretical implications are also wide-reaching. Scholars in a wide variety of disciplines may find insight from the results of this study. Individuals within computer science may find a more pragmatic benefit, although some theories may need to be adjusted or will be reinforced by the data obtained. They may be able to approach existing theories from a different viewpoint as well, or understand the cause of drawbacks to
these theories. Research in human-computer interaction and usability studies, which often relies on the interface more than the user, may find the same benefits. Those in rhetorical studies, on the other hand, will see another way to extend their research into more technical arenas.

Of course, these implications are mere conjecture at this point and the true implications of this study will only be seen once researchers in these fields can apply this research in their own studies. Given the nontechnical nature of the theories behind this research, I believe that the following study, though reliant on current technologies, will be useful even as the technologies that appear on the following pages become obsolete. Therefore, I believe this cross-disciplinary study and dissertation will be far-reaching in its theoretical and practical influences and beneficiaries.
Chapter 2

Contrasting context and situation: A review of the literature

Attempting to separate the notions of context and situation poses a unique and difficult task due to their interweaving throughout much research and literature. In many cases, rhetorical aspects of a given situation become absorbed by the term context such that they cease to stand on their own. The task of this chapter, then, is to pull the rhetoric out of the context to better understand the complexities involved in the interaction between human and machine, including the relationship between the contextual knowledge that may already be present in many AI products and the rhetorical knowledge it most likely lacks. However, identifying a single definition of context based upon the literature in either Computer Science or Rhetorical Studies is nearly impossible, as it seems many scholars employ a more tacit definition of the term in their own research. To place context in contrast to the rhetorical situation, then, requires a thorough understanding of the use of both terms and their purpose throughout the literature. As we begin to understand the differences between the two, we will also begin to understand the origin of the difficulties many individuals face when solidifying a singular, operationalized definition of context – namely, their unknowing conflation of the concepts of the rhetorical situation and context. In fact, if we look at the two independently, an operationalized form of context can be developed more easily and, importantly, the concepts of contextual intelligence and rhetorical intelligence (which will be discussed momentarily) can be separated out with regards to AI. As this chapter will show, by
distinguishing between the two terms, we can identify examples wherein an individual AI possesses a contextual intelligence but not a rhetorical intelligence and, subsequently, extrapolate what that may mean.

This chapter, thus, will first begin by laying forth an understanding of the rhetorical situation and the debate surrounding Bitzer’s (1968) definition. It will then discuss the various uses of context and how each approach to the term relates to rhetorical situation. It will attempt to tease out aspects of the rhetorical situation that may have been encapsulated by the definition of context being examined and discuss how that definition changes when the rhetorical components are identified. Rhetorical situations do not exist independently of context, as the terms are related, but to assume that the two are the same is to ignore significant and valuable information about a given interaction. In fact, a strict denotative parsing of the terms would be impossible as rhetorical responses do rely upon the acknowledgement of various contextual components. Thus, this discussion will not attempt to separate context and rhetorical situation into distinct, unrelated entities; it will identify and clarify the relationship between the two.

I will then apply the results of this discussion to a comparison of contextual intelligence and rhetorical intelligence, showing how the two exist simultaneously and how the possession of one without the other should be seen as a hallmark hurdle for the true replication of human intelligence. Finally, I will discuss two classic approaches to thinking about AI in Computer Science: the Turing Test and the Chinese Room Experiment. I will show how both of these thought experiments, though attempting to test the intelligent
capabilities of artificial systems, also show how these two forms of intelligence appear simultaneously. I will also show how the true possession of both forms of intelligence may not be necessary as long as the machine can compensate for its lack of rhetorical intelligence by recognizing its limitations in certain interactions with humans or, more plausibly, if marketers recognize the limitations of their AI and manage expectations accordingly.

**Audience, Exigence, and Constraints: Understanding the Rhetorical Situation**

According to Bitzer, rhetoric is situational: “rhetoric is a mode of altering reality, not by the direct application of energy to objects, but by the creation of discourse which changes reality through the mediation of thought and action” (1968, p. 4). This discourse exists within a rhetorical situation that inspires and brings about the discourse itself, but also molds and shapes the discourse into a persuasive form. In other words, “the situation dictates the sorts of observations to be made; it dictates the significant physical and verbal responses; and, we must admit, it constrains the words which are uttered…” (1968, p. 5). It’s important to note that Bitzer stipulates in numerous points throughout his discussion that the rhetorical situation exists within a context, and that a single context can result in a myriad of different situations because it can result in multiple rhetorical exigences, any one of which may be taken up and formed into a unique rhetorical discourse. Bitzer uses several terms to describe context – context of meaning or meaning-context (p. 3), historic context (p. 3, 10), context of situation (of which he is referring to Bronislaw Malinowsk’s original reference to this phrase, p. 4), natural context (p. 5), rhetorical context (p. 10), and fictive context (p. 11). Each of
these references places the term context in contrast to the rhetorical situation, in such a way that multiple types of contexts are seen as coming together to engulf and result in the rhetorical situation. Rhetorical situations, then, result from one or multiple contexts. This viewpoint complicates the idea of context within Computer Science, as the term is never referenced plurally but as a single context with many forms. In practice the two approaches are almost identical. The description of a “historic context,” for example, means basically the same thing with both approaches; with one, the historic context is its own entity coexisting with other contexts, with the other it is a part of a larger single context. For simplicity’s sake, I will be adopting the later approach.

The complexity of the relationship between context and situation may explain why some scientists include rhetorical components of an interaction within the term context (see Guerini et al., 2004; Holzapfel et al., 2008; Pina et al., 2008). If one appears within the other, it can be difficult to recognize where the boundaries of context and situation exist, especially if those boundaries are fluid. Indeed, the core of Bitzer’s argument is that certain situations contain circumstances that make a rhetorical response necessary, appropriate, and, to those involved, expected. Additionally, within a given rhetorical situation, multiple contexts may converge to provide the available means of persuasion; on the other hand, a single context may spawn many different (but singular) rhetorical situations. However, this definition fails to truly acknowledge how the rhetor goes about forming rhetorical arguments, focusing instead on the why; a drawback that many have criticized.
As a case in point, the exigence described here is one of three “constituents” that form the rhetorical situation: exigence, audience, and constraints (Bitzer, 1968, p. 6). Consigny defines exigence as, “urgent problem potentially modifiable through persuasive discourse” (1974, p. 175). An exigence “… is rhetorical when it is capable of positive modification and when positive modification requires discourse or can be assisted by discourse” (Bitzer, 1968, p. 7). This exigence dictates to the rhetor whom he or she must address and the change (or modification) that should be made. Ultimately, Bitzer’s is a very deterministic view of exigence, one that fails to truly recognize the autonomy (even to a minor degree) of the rhetor. Arthur B. Miller (1972) and Vatz (1973) both point out that the creativity of the rhetor should and does impact the discourse within the rhetorical situation. As Miller (1972) points out, the rhetor possesses the capacity to interpret the exigence as he or she sees fit, and responds in such a way that is unique to his or her own interpretation. Additionally, he argues that, “rhetors not only perceive and judge exigences but themselves in relation to those exigences” (A. B. Miller, 1972, p. 116). In other words, rhetors are self-aware in their choices and responses to exigences and, ultimately, their own actions within a rhetorical situation. Importantly, Bitzer’s definition and discussion of situation lends itself well to a computational focus on context. Bitzer argues that, “the exigence and the complex of persons, objects, events and relations which generate rhetorical discourse are located in reality, are objective and publicly observable historic facts in the world we experience, are therefore available for scrutiny by an observer or critic who attends to them” (1968. p. 11). In other words, the information about audience, exigence, and constraints all exist within a
finite universe of variables since they are all located within a finite and definable reality. For computer scientists, the ability to identify and assign value to variables that the AI will encounter in the real world is essential for developing artificial intelligence and expertise. However, Bitzer’s understanding of situation, though important, is overly simplistic in explaining the interaction between AI and human beings (or two or more human beings).

Vatz (1973), I believe, would agree, since he takes serious issue with the rhetorical situation as Bitzer defines it, going so far as to title his article “The Myth of the Rhetorical Situation.” He, importantly, points out that the scaffolding for Bitzer’s argument is rooted in the idea that meaning resides within “events, facts, peoples, or ‘situations’” (Vatz, 1973, p. 156). Vatz instead argues that meaning comes into existence when communicated between two people. One individual chooses what facts or events are relevant and communicates that choice through his or her rhetorical discourse. The choices the rhetor ultimately makes are an act of creativity and interpretation (Vatz, 1973, p. 157), something that Bitzer does not acknowledge in his discussion. Ultimately, as Consigny summarizes so eloquently, Vatz argues that rhetorical situation “rather than determining the proper response of the rhetor, is itself determined by the rhetor” (1974, p. 175). For the purposes of the comparison of context and situation, we must see this debate over the deterministic characteristics of situation as a critical and important disconnect. On the one hand, Bitzer’s definition suggests a much closer relationship between rhetorical situation and context than Vatz’s. Indeed, Vatz’s definition suggests that the rhetorical situation results from a complex and creative interaction between rhetor and audience that cannot simply be identified as a result of the relationship between
the rhetorical situation and context as Bitzer argues. However, Consigny (1974) directs us to a happy medium; one that I believe is more conducive to what this dissertation is examining. The context surrounding a given rhetorical situation does indeed shape, to some degree, the actions of the rhetor. It provides the means and tools that the rhetor may use to form his or her argument – the context provides the constraints for the situation. The rhetor’s own creativity and free will then allows him or her to pick and choose from the available means within a given context to form his or her argument, one that is unique to the rhetor, the audience, and the exigence present. Since a single context can result in multiple exigences and, hence, multiple rhetorical situations, the rhetor’s creativity also allows him or her to choose which exigence (if multiple are present) and corresponding rhetorical situation to respond to.

This discussion would be remiss not to acknowledge the valid points within Vatz’s (1973) and A. B. Miller’s (1972) arguments. However, neither argument makes a significant enough stride to discount completely the concept of the rhetorical situation as Bitzer describes it. Indeed, Consigny (1974) points out that both Bitzer and Vatz offer valid points towards the understanding of rhetorical situations. However, he argues, and I agree, that neither really considered rhetoric in practice. Consigny (1974) argues that rhetoric is an art wherein the rhetor creates his own response to an exigence within the boundaries of given constraints. He disagrees with Vatz’s assertion that a rhetor can create his own exigence but does support the notion that a rhetor can alter a rhetorical situation based upon his or her own creativity and free will (1974, p. 178). In other words, we should understand exigence as
something that does constrain the rhetoric within a given situation, but we should also recognize and acknowledge the creativity of the rhetor to respond in an individual, creative way. As such, rhetorical intelligence, as I alluded to earlier, is defined as the capacity to recognize, identify, and creatively respond, within a set of constraints, to an exigence and audience in a rhetorical situation as a rhetor.

The next component of the rhetorical situation is audience. The term *audience* has been debated and discussed throughout the literature (see Aikin, 2008; Crosswhite, 1989; Ede and Lunsford, 1984; Gibson, 1950; Gross, 1999; Jørgensen, 2009; Ong, 1975; Park, 1982). This heavy discussion of audience is understandable, given that “the rhetor alters reality by bringing into existence a discourse of such a character that the audience, in thought and action, is so engaged that it becomes mediator of change” (Bitzer, 1968, p. 4). Audience, it seems, may be the most important component of a rhetorical situation; ultimately, the audience determines the success or failure of the rhetor and it is the audience that the rhetor seeks to move to action.

Although many discussions of audience exist, the important thread among all of them is where the creation of the audience lies and the participatory role of the audience in the rhetorical situation. For example, according to Perelman and Olbrechts-Tyteca, the concept of audience is culturally situated and developed (1969, p. 33). Furthermore, they assert that the purpose of argumentation is to “convince the reader that the reasons adduced are of a compelling character” (Perelman and Olbrechts-Tyteca, as cited in Aikin, 2008, p. 239), which in turn would require the audience to make a judgment as to the convincing nature of
the argument being made. In other words, for Perelman and Olbrechts-Tyteca, audience is more than just a passive recipient of rhetorical discourse. Rather, the audience actively chooses to act or not act based upon the rhetor’s argument.

In 1950, Walker Gibson wrote discussing what he referred to as “mock readers,” or the “fictitious reader,” whose role an audience must occupy in order to receive, understand, and comprehend a text. Although primarily concerned with textual audiences, Gibson’s concept of a mock reader can also be applied as well to communication beyond the written word. He explains that, “a bad book, then, is a book in whose mock reader we discover a person we refuse to become, a mask we refuse to put on, a role we will not play” (Gibson, 1950, p. 268). Similarly, audiences of visual and/or oral arguments can evaluate speeches as “poor” or visual artifacts as “not working” using the same principle. Whenever an audience declines to undertake the role set for it by the author, creator, or speaker, then that rhetorical argument can be seen as a failure. Walter Ong (1975) offered a description of audience very similar to that of Gibson. This audience, referred to as a “fictitious audience,” consists of imagined individuals that the writer and/or speaker creates (1975, p.12). A writer must imagine and establish in his/her mind an audience, and actual readers must then take on the role as a member of that audience that the writer has created (1975, p.12).

Ede and Lunsford, however, argue for a combined theory of audience – one of audience addressed and audience invoked. They claim that writers analyze and attempt to discern their audience using a variety of means, but in their actual writing they must invoke an imagined audience, albeit one greatly informed by the audience they are attempting to
address. Basically, “the term audience refers not just to the intended, actual, or eventual readers of a discourse, but to all those whose image, ideas, or actions influence a writer during the process of composition” (Ede & Lunsford, 1984, p. 168). Rhetors explore, through research or other means, who they believe their audience to be, and then use the results to create an audience to which they direct their discourse. For the purposes of this dissertation, I will be using Ede and Lunsford’s combined definition of audience as it lends itself well to a study involving an artificial rhetor, given that AI relies on the gathering of information to understand and process its world. This definition of audience, although not identical to Bitzer’s concept where “the rhetorical audience must be capable of serving as mediator of the change which the discourse functions to produce” (1968, p. 8), does not conflict with it either.

The final component of the rhetorical situation consists of constraints: “persons, events, objects, and relations which are parts of the situation because they have the power to constrain decision and action needed to modify the exigence” (Bitzer, 1968, p. 8). Unsurprisingly, Bitzer doesn’t spend much time discussing the different possible constraints of any given rhetorical situation, namely because they could be too numerous to list or describe in any concise form. Bitzer does, however, credit Aristotle with identifying the two classes of constraints: those that stem from “the rhetor and his method” and others or operative constraints (1968, p. 8). In other words, many of the constraints of a given situation will develop or exist because of the rhetor and the choices he or she makes and the beliefs he or she holds. Bitzer specifies examples of constraints such as “beliefs, attitudes, documents,
facts, traditions, images, interests, motives and the like” (1968, p. 8), and the literature describes additional constraints such as genre (see Jamieson, 1973; 1975) and ideology (see Solomon, 1988), with more constraints mentioned throughout most studies on rhetorical situations. These constraints are determined by the context(s) of rhetorical action, and therefore will change from one context to another. Of all the elements of the rhetorical situation, constraints most closely relate to context since many, if not all, of them rely upon and stem from the context surrounding a rhetorical situation. The rhetor chooses and/or adapts to which contextual elements he or she will address through his or her actions and words, thereby transforming those elements into rhetorical constraints. In other words, one context may result in multiple rhetorical situations, whereas a rhetorical situation exists within a specific, single context.

Given the interrelated nature of context and situation, then, it’s understandable that scientists (and, perhaps on occasion, rhetorical scholars) could conflate the two terms. Indeed, we have seen how debate exists within rhetorical research over the components of a rhetorical situation and the role and autonomy of the rhetor and his or her audience. However, Consigny concludes that, “the real question in rhetorical theory is not whether the situation or the rhetor is "dominant," but the extent, in each case, to which the rhetor can discover and control indeterminate matter, using his art of topics to make sense of what would otherwise remain simply absurd” (1974, p. 185). Consigny states earlier that “the rhetorical situation is an indeterminate context marked by troublesome disorder which the rhetor must structure so as to disclose and formulate problems” (1974, p. 178). The use of the
term “indeterminate” in both cases is, I believe, a deliberate one. It contrasts the distinctly deterministic nature of Bitzer’s argument; however, Consigny carefully points out that not all of Bitzer’s points were incorrect in that the rhetor does not independently create a rhetorical situation to fit his or her needs. He or she acts and speaks within a given space and time and engages with an audience outside himself or herself. The rhetorical situation, then, “must be concretely engaged in a particular experiential context” (Consigny, 1974, p. 183). An exigence forms within an indeterminate context – the rhetorical situation – that becomes defined (and, importantly, measurable) based upon a given audience and the actions of the rhetor.

Thus, if we consider this discussion of situation with regards to artificial intelligence and context, we can see not only why the term context has been used incorrectly as an all-encompassing term, but also where and why AI devices fail in their interactions with human beings.

In order for a rhetor to act in response to a rhetorical situation, he or she must be able to recognize, respond, structure, and adapt to a complex interplay between an exigence, constraints and audience within the rhetorical situation present – in other words, he or she must possess rhetorical intelligence. For artificial intelligence to act as a rhetor, it must be able to do all three. AI may be able to recognize a rhetorical situation if it is simple enough and well defined (“convince me that this point is valid”), but it may also see in that situation multiple exigences, if it is able to see any at all. The ability to recognize an exigence returns us to the strong AI/weak AI debate – with enough data, would it be possible for AI to
recognize exigence? This is, of course, highly debatable. If an AI could theoretically have at its disposal detailed records of thousands (perhaps millions) of rhetorical acts, could it then parse from that information what an exigence might be? This would be the first hurdle, and one unlikely that many current commercially available AI devices would be capable of. This being said, let’s assume, for argument’s sake, that AI could identify or structure an exigence. It must then, as the research discussed shows, identify and create within its own programming an appropriate rhetorical audience with which it plans to interact. It must also identify the constraints present. Finally, as a result of this information gathered and developed, it must develop an artistic response to the audience, one that is both socially acceptable and technically appropriate to the given situation. Depending on the nature of the interaction between AI and human beings, the AI may also need to recognize that the audience of this rhetorical response may not consist of just the individuals within the immediate physical vicinity of the AI, especially if the communication is text-based. Other individuals may need to make decisions based upon the statements the AI makes, and those other individuals may influence the person or person(s) directly interacting with the AI. The AI may also need to recognize both the audience addressed and audience invoked as Ede and Lunsford (1984) describe them, a task made more difficult for a machine whose understanding of situation and context relies upon programming confined to preset algorithms and processes.

I am arguing and will explore in this dissertation that when AI devices fail is when they ignore or are incapable of recognizing one or all of these factors. Being aware of
contextual factors, such as physical elements within an environment, and responding to just contextual factors, is not the same as being aware of rhetorical factors, such as which physical elements can or must be used in the formulation of a rhetorical argument, and responding to those as well. The key difference, it seems, stems from the transience of rhetorical situations (resulting directly from the timeliness of the exigence) and the intent of the rhetor in referencing the various rhetorical components of the situation. Additionally, devices face disapproval by human users when they fail to create, as Consigny argues, rhetorical art when presented with a rhetorical exigence. This failure, I am arguing, results from the inability to recognize rhetorical situations. If AI researchers can identify rhetorical situations, then to some degree (which can be debated), the ability for the AI to produce a creative rhetorical act becomes increasingly more probable.

**The 10,000 Faces of Context: Narrowing It Down**

To a rhetorician, context directly influences a rhetor’s actions or words, while also structuring the ways in which an audience perceives the argument being made. For example, a lawyer attempting to convince a jury of the guilt of a defendant will structure his or her argument differently than if that same lawyer were to be attempting to convince those same jury members of the defendant’s guilt in a setting such as a bar. In other words, context plays an important role in rhetoric: “the work of rhetoric is fragmentary outside its environment; it functions only in a particular world” (Black, 1965, p. 39). Context consists of the elements that surround the rhetorical situation, and in this same way the rhetorical situation is reliant
on the context that surrounds it for its existence and formation. Although an
oversimplification of the complexity of this relationship, we could symbolically represent
this relationship as follows:

![Figure 1: Relationship between Context and Rhetorical Situation](image)

Importantly, this means that the rhetorical situation cannot exist outside of a context,
and that it is not technically incorrect to include components of the rhetorical situation in
one’s description of context. However, I would liken this to what happens if a component
inside your car breaks. Most drivers conceptually know how a car works: press the pedal, car
moves. Most drivers do not understand, though, how all of the parts inside the car work
together, just that the car works, i.e. they do not understand the relationship between
rhetorical situation and context, just that the two exist and are related. They can’t fix the part
that failed because they don’t understand how it connects to all of the other parts in the car. Similarly, an AI wouldn’t understand why it failed in a given interaction if it didn’t understand how all of the components of a rhetorical situation exist within a context. However, in the case of a rhetorical situation, the driver would not be able to know in advance what any of the parts were or what they responded to – in other words, they would be indeterminate components of an overall system that he or she would need to understand, and in the case of a rhetor – play a creative part in building, in order to figure out why the part failed.

This being said, when we attempt to pinpoint what exactly context, for rhetoricians, consists of the task becomes a bit more complicated. This difficulty in pinpointing a definition likely results from the lack of consistency across multiple authors and approaches. Rhetoric can be found in multiple forms or media – written, spoken, visual, etc. We cannot say, for example, that all rhetorical exigencies involve visual components because, for some, the auditory components dominate. We can safely say that discourse plays a role, but to varying extents based upon particular rhetorical situations. Rhetoricians, it seems, find it difficult to pin down a singular definition of context. Perhaps, then, the best way to define context is to not define it at all, but rather to describe various components that can contribute to it (see Table 1 for some examples).
Stephen Lucas essentially attempts to do just this. When describing the role of context within textual criticism, he identifies three different types of context: social, linguistic, and textual. Social context he describes as being composed of several different “factors”: “the political, religious, economic, intellectual, and institutional forces that condition both the development of the text and its internal operations” (Lucas, 1988, p. 248). The linguistic context he defines as being related to the actual words used by the author or speaker. These words, he states, constantly evolve and change with the times – at any given point, a linguistic context would consist of “its own vocabulary, conventions, idioms, and patois” (1988, p. 249). He relates this form of context to the blurring of the boundaries between text and context; however, he also points out that the third type of context, textual context, does so to an even greater extent:

Based on the understanding that rhetorical discourses are temporal phenomena, it holds that a text creates its own internal context as it unfolds in

<table>
<thead>
<tr>
<th>Contextual Component</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical</td>
<td>Other similar contexts and results, prior history between individuals in the given context such as any animosity</td>
</tr>
<tr>
<td>Social</td>
<td>Political leanings, religious beliefs, social norms and standards</td>
</tr>
<tr>
<td>Physical/Environmental</td>
<td>The weather, physical locations of everyone in a given context, other physical elements in the room, the type of paper used</td>
</tr>
<tr>
<td>Linguistic</td>
<td>Grammar rules, genre constraints, vocabulary, conventions, idioms</td>
</tr>
<tr>
<td>Cultural</td>
<td>Cultural standards (red means stop, green means go) and expectations (how far apart you stand in conversation)</td>
</tr>
</tbody>
</table>
time and is processed by a listener or reader. Meaning and effect are produced, not by the text as a static entity, but by the progressive interaction of the audience with the temporal flow of ideational, dispositional, stylistic, and syntactical elements in the discourse. (1988, p. 249)

Although Lucas is concentrating heavily upon the textual components of analysis (likely because his primary focus is on a close reading of texts), his attempt to define context as consisting of three different types of context speaks to the attempts made by computer scientists as well. Lucas’ definition does not identify clearly the individual components of a particular context and, indeed, he even mentions that the components of each type of context change over time. However, he sets forth a scaffolding, so to speak, that rhetoricians use (or could use) when attempting to identify context within a close reading of a rhetorical text. Context, we can determine, is crucial in understanding and creating any rhetorical act or work, but to many scholars the understanding of context has become implicit and not outwardly defined. However, by comparing the two we can see some common points when it comes to identifying a given context – both emphasize a historical component, both emphasize the social situation, and both, to some degree mention the physical environment or surroundings (other words on the page or the actual, three-dimensional physical environment).

When comparing these components to the elements of a rhetorical situation, we see some key differences. The exigence of a situation will arise from historical, social, or
environmental factors, and in this way the exigence will be shaped by the context within which it is found. However, we can see that it does not exist in any one of these three factors individually. The rhetor’s own experience – historically, socially, and environmentally – will influence his or her ability to “manage” the exigence, as Consigny (1974) puts it. The audience most clearly can be seen as a social element, but the history behind the rhetor and his or her audience certainly should be seen as an important factor in the resulting rhetorical discourse. Additionally, if we consider that the audience a rhetor directly addresses is not necessarily the individuals directly in front of him or her, but an idealization of those individuals in the mind of the rhetor (or Ede and Lunsford’s (1984) audience invoked – a distinctly difficult problem for AI to tackle), influenced by those in front of him or her, then we must also consider audience to be something at once inside a given context but additionally outside of it, on a z-axis of sorts. Finally, the constraints that Consigny and Bitzer emphasize as being influential to the rhetor can and should be found within the contextual environment that surrounds any given rhetorical situation. However, only those elements that will have a direct impact on the actions and discourse of the rhetor and that the rhetor invokes should be considered a part of the rhetorical situation within the context. For example, when trying to convince a friend to try a new dish at a familiar restaurant, contextual information such as the familiarity of the restaurant, ingredients in the dish and appearance of the food will all be important rhetorical elements to the rhetor for use in convincing his or her friend. On the other hand, contextual data such as the types of light
fixtures the restaurant uses or the political affiliation of the friend are likely not going to become important elements in the rhetorical argument the rhetor develops.

Ultimately, any piece of contextual information that the rhetor decides to creatively use when developing his or her argument will become a part of the rhetorical situation, with all other information remaining solely contextual. Turning this understanding into an operational definition of context and situation that can be used within computer science, however, would be difficult, but not impossible. We know that the rhetorical situation results from an exigence that is rooted in an indeterminate context. The actions of the rhetor (and to a limited degree his/her audience) makes a context determinate and, thus, measurable and identifiable and suited for usage in the research of Computer Science. The field of Human-Computer Interaction to a degree takes up this charge, measuring the interactions between humans and machines for elements such as human satisfaction, word choice on the part of the AI or human, physical mannerisms, etc.

**Historical, Social, and Environmental: Understanding Context in Computer Science**

Context is a term used often throughout computer science research when referencing practical applications of artificial intelligence. For example, within the growing field of mobile technologies, context-aware devices have become the “talk of the town,” so to speak. Mobile devices such as cell phones, iPods, iPads, e-Readers, etc. often use internal software to locate an individual within the physical, “real” world. Beyond mobile applications, search software often attempts to “guess” at the subject being sought based upon a user’s past
searches, the location from which he or she accesses the site and other identifiable information. There are numerous other examples that represent the importance of context. For many computer programs, recognizing a user’s context is critical in ensuring the “success” of the program (it’s hard to have a robot shake your hand if the robot can’t see it, for example). One study of the role of context in application design explains how knowing the context of an AI “reduces information needed in dialogue ... reduces cognitive load/human memory load ... takes advantage of recognition ... resolves ambiguity ... [and] captialises [sic] on existing knowledge and previous experience of the agents,” among other reasons (Maskery et al., 1992, p. 25).

Identifying a single definition of context throughout the literature, however, seems to be nearly impossible. The use of the term context within studies examining devices or software such as those mentioned above seems to imply a tacit understanding of the term; however in practice it seems the term takes on varying definitions. In fact, Dey argues that many definitions of context used in computer science or AI studies “are too specific” (2001, p. 5). They are designed to fit the mold of the study at hand. Instead, he suggests a broader, unspecific use of the term. Thus, Dey defines context as: “…any information that can be used to characterize the situation of an entity. An entity is a person, place, or object that is considered relevant to the interaction between a user and an application, including the user and applications themselves” (2001, p. 5). Dey’s vague definition actually represents the difficulty many AI researchers face when discussing context, highlighted and summarized by a series of workshops at the Computer-Human Interaction (CHI) conference. Maskery and
Meads (1992) and Maskery, Hopkins, and Dudley (1992) discuss the results of these workshops, held at the Computer-Human Interaction (CHI) 1989 and 1990 conferences, respectively, where scholars in the fields of human-computer interaction and AI research gathered to pinpoint a definition of context for use in studies within the fields.

Maskery and Meads (1992) recall the results of the first workshop, held at the CHI 1989 conference, wherein the discussion was restricted to the interactions between a human and a computer-based system. In the report of the results, Maskery and Meads asked members of the various groups within the workshops to write position papers or summaries of the conclusions reached by the various groups. Preston Ginsburg's position paper, for example, described how his group concluded that, “the context of a thing defines our understanding of it” (as quoted in Maskery and Meads, 1992, p. 16). Summarizing the opinion of one group within the workshop, Jim Carter also states that “each entity involved in an interaction has its own context, which may or may not be consistent with parts of the contexts of other entities” (as quoted in Maskery and Meads, 1992, p. 17). In the end, the general conclusion that seemed to permeate the workshop was that context could not easily be pinned down, nor does it remain consistent. Indeed, as one group concluded, “context is a conceptual ideal which can only be approximated by models” (Jim Carter, as quoted in Maskery and Meads, 1992, p. 17).

In the follow-up workshop the next year, the groups did not discount the conclusions made by the previous workshop but instead expanded on them. They did agree on two definitions for types of contexts: (1) “Conceptual context was defined as the semantic
environment that provides meaning to an agent” and (2) “Perceptual context was defined as being the presentational issues related to context, the giving of visual, and perhaps audible, cues to the user to clue them into the context ... all those things from the 'environment', system, task and individuals, which create the mental framework for the user's cognitive activities” (Maskery et al., 1992, p. 23), in other words, things in the environment and what they mean. Importantly, they also concluded that the conceptual context, as defined, drives the perceptual context (Maskery et al., 1992, p. 24).

However, after scholars at the conference reached these conclusions, multiple stipulations arose as well. For example, in addition to these definitions, conclusions were also reached that context was “the mechanism which provides efficiency of communication between two (or more) agents,” that “context is the conceptual common understanding between two (or more) agents,” and that it “takes into account other information in order to provide enhanced service” and more (Maskery et al., 1992, p. 24). In other words, an operational definition could not be agreed upon, only a theoretical one. However, the participants did stipulate that it would be easier to “provide good context if the user was doing a well-structured task” (Maskery et al., 1992, p. 30). The term “good context” here references both the ability for an AI to recognize a given context (could also have been stated as “an easily identifiable context”) and the ease of defining context, which participants argued would be easier if users always interacted with the AI when attempting a structured task. A well-structured task would be a non-rhetorical one, since it would (presumably) not involve a discourse that could lead to change in the audience or, to use a more technically-
oriented term, user. Naturally, this would be easier to identify and program responses to because it would not require a response to an exigence as none would (again, presumably) exist, however it also highlights the inherent error in approaching human-AI interactions this way. Attempting to constrain the interaction into a non-rhetorical task ignores the natural and actual ways that humans interact with AI in different contexts and situations.

Indeed, as will be seen later in the discussion of users’ interactions with various forms of AI, in well-structured tasks such as vacuuming the floor that require only limited discourse between the AI and human, users did not hold the same social and interpersonal expectations of the AI as they did in situations where the user (or the audience) interacted on a much more social level, such as when the AI is attempting to fulfill a customer service role. In other words, in situations where the human presented himself or herself as someone who needed decision making assistance, more social and interpersonal expectations existed than when the human requested the AI to engage in a menial task. One could infer, then, that the “good context” that Maskery et al. (1992) seem to strive for would be impossible to identify in a predominately social interaction without also incorporating an understanding of the rhetorical situation, and it may even be impossible in that scenario as well.

One thing that could be agreed upon within the workshop was the importance of context within the research, which partially explains the increase in articles published after this conference about the role of context in AI research (see Crowley et al., 2002; Davis et al., 2004; Dey, 2001; Schilit et al., 1994). Importantly, Crowley et al. mention definitions of context used in other disciplines, something not done in prior or subsequent studies on
context. In linguistics, they state, “context refers to the meaning that must be inferred from the adjacent text” (Crowley et al., 2002, p. 118). However, this definition is not adequate when applied to AI: “Purely symbolic context is now recognized as inadequate for intelligence. Intelligence requires the ability to perceive and to act” (Crowley et al., 2002, p. 119). Simply examining the context by looking at what surrounds the individuals within it, or examining the environment, is insufficient. Instead, “an ontology for context awareness requires both top-down and bottom-up components. Bottom-up components are tied to whatever the system can sense and interpret. The top-down elements are derived from users and their tasks” (Crowley et al., 2002, p. 120). In other words, in their model, all aspects of the relationships between the various physical components in the system must be examined.

One of these aspects is the goals of the user. Crowley et al. consider this to be crucial in their model since users, they argue, are driven by goals that usually do not involve directly interacting with the system (Crowley et al., 2002, p. 120). Most users consider the AI to be a tool used in attempting to satisfy a goal. This works well with the weak AI approach mentioned earlier, since most users will be interacting with AI specifically designed to complete a task. That task will (hopefully) be a required one for the goal(s) of the user and the more typified the action, the more seamless and simple the interaction will be (with the reverse also holding true). Thus, the model Crowley et al. develop is one in which, “the context for a user U and task T is a composition of situations. These situations all share the same set of roles and relations. Thus a context determines the collection of roles and relations to observe” (Crowley et al., 2002, p. 127). In formulaic form, this equates to:
Context \((U, T) \rightarrow \{\text{Role}_1, \text{Role}_2, \ldots, \text{Role}_n; \text{Relation}_1, \ldots, \text{Relation}_m\}\) (Crowley et al., 2002, p. 127). Addressing the use of the term “situation” used above, Crowley et al. stipulate that “the user's situation is a particular assignment of entities to roles completed by a set of relations between the entities. Situation may be seen as the ‘state’ of the user with respect to his task ... In a similar manner, the system's situation is the assignment of entities to roles, and the relations between these entities” (Crowley et al., 2002, p. 127-128).

Crowley’s definition resembles that of rhetoricians in that certain elements of a given context make up (determine) the elements of a rhetorical situation. Indeed, if we re-examine Table 1, we see that many of the elements considered contextual can also be considered rhetorical constraints. The difference, it seems, is the lack of an “individual” category in Table 1. The key, important, difference between context and rhetoric lies not in the interaction between the rhetor and his or her audience but in the rhetor himself/herself/itself. The rhetor’s own creative abilities and decisions are rhetorical elements that would not appear in any definition of context. Therein lies the difference as well between rhetorical intelligence and contextual intelligence. Rhetorical intelligence demands the ability to not only respond to a rhetorical situation when presented the elements of one (an exigence, audience, and constraints), but the ability as well to fill the role of rhetor in referencing and giving significance to these elements in the rhetorical situation (whether he/she/it chooses to or not). Contextual intelligence, on the other hand, requires the ability to recognize all the contextual elements in a given interaction. Whereas contextual intelligence requires
identification, acknowledgement, and recognition, rhetorical intelligence requires processing, response, and interaction.

Dey (2001) attempts to produce an operationalized definition of context in order to propose the need to increase the recognition of context by AI systems. In it, he describes the first instance of the term “context-aware” in an article by Schilit and Theimer (1994) where context referred to the “location, identities of nearby people and objects, and changes to those objects” (Dey, 2001, p. 4-5). Schilit and Theimer’s (1994) purpose was to create a mapping tool, so their definition is understandable. Their concern within the program was for objects within a physical environment, but not necessarily for the relationship between the user of the program and those objects. Their definition of context satisfied their needs to describe, at a more geographic level, the environment within which the AI would engage with the human in their study. However, as Dey (2001) then points out, definitions such as these that define based upon a particular case (or example) can be difficult to apply within other studies. He believes the same for definitions of context referring to synonyms, such as environment or situation.

A case in point can be found in one of Schilit’s other studies published the same year, where he and his colleagues expand the definition of context used previously in Schilit’s own studies (Schilit et al., 1994). Although the components did not change, he and his colleagues describe them differently:

Three important aspects of context are: where you are, who you are with, and what resources are nearby ... Context includes lighting, noise level, network connectivity,
communication costs, communication bandwidth, and even the social situation: e.g., whether you are with your manager or with a co-worker (1994, p. 85).

All of these are both observable and measurable, which allows them to be transferred to the digital realm (relatively) easily because they can be understood on an algorithmic level. However, while a rhetor may look at each of these factors in developing and constructing an argument or response to a situation, the appropriateness of the response is determined by more than just summarizing the available data or drawing conclusions from the information provided by the surrounding environment.

Furthermore, the inclusion of the “social situation” at the end of Schilit et al.’s definition drastically changes the scope of what to include in data gathering when attempting to identify a given context. The social situation is an integral part of context when developing context-aware systems that adapt and react to a given location, nearby population, adjacent devices, and environment over time. As they describe it, “people's actions can often be predicted by their situation. There are certain actions we regularly take, some of which are social, when in the library, kitchen, or office. Contextual information and commands aim to exploit this fact” (Schilit et al., 1994, p. 87). In order to exploit it, though, they must understand it, which can be difficult. Although human beings typically engage in repetitive and known tasks in these locations (such as washing dishes in the kitchen), we can never be completely certain when an individual walks into a room why he or she is there. The observer, or audience, can make an educated guess as to the actions of the individual entering the room, but it will be nothing more than a guess until actions actually take place. Note here,
though, Schilit et al.’s use of the term “situation.” Here, Schilit and his group are NOT referring to a rhetorical situation. Bitzer (1968) carefully points out that a situation is not rhetorical unless change is possible through rhetoric. When we remark to someone in the break room that it’s hot outside, this is not necessarily a rhetorical situation as the individual speaking may not expect or even desire an answer, making the situation not necessarily a rhetorical one, even though it may be a social one. For many computer scientists, context is necessary for the AI to both physically navigate its environment and to respond to the individuals in an environment because the AI has a limited understanding of the world. The AI must be pre-programmed to understand certain actions or key words, much like Siri, in order to fulfill a specific purpose, such as that of a personal assistant in Siri’s case.

Davis et al. (2004) attempt to overcome the difficulties of identifying context in real time, and their study attempting to use AI to discern what is being shown, physically and symbolically, in a photograph is a good example of putting the results of the conference discussion of context into practice. They identify spatial, temporal, and social aspects of context that can be leveraged to infer the content of media, in this case photographs. Their specific research involves using the abilities of a camera phone in combination with a shared community database of annotations and meta-data to infer media semantics through the annotation of images at the time of capture (Davis et al., 2004, p. 189). They do so in order to overcome what the literature (specifically Smeulders et al., 2000) describes as the “semantic gap” and “sensory gap” that all image recognition AI software must overcome to “gain widespread acceptance” (Davis et al., 2004, p. 189). The sensory gap refers to the physical
attributes of an object that make it identifiable (for example, eyes, nose, and mouth being present for a face) that most advanced AI, like the one utilized in Davis et al.’s study, can overcome. The semantic gap consists of the descriptions human beings give to, in this case, a photograph that the AI is incapable of constructing outside of human input (Davis et al., 2004). They overcome the semantic gap through what they refer to as “contextual metadata,” or human input which is recorded at the time of image capture and analyzed on-the-spot. The study concluded that there were, “statistical regularities in the spatio-temporal-social contexts of both individual and group phototaking that can be leveraged to infer media content” (Davis et al., 2004, p. 193). For computer scientists, contextual understanding is a critical hurdle for AI to overcome in order to mimic human intelligence and automate typically human tasks. Focusing on a specific component of context, as the Davis et al. study did, allows the researcher to delve deeper into the role of context in the given study.

Davis et al.’s system isn’t perfect, though, as they freely admit (Davis et al., 2004, p. 193-194). They rely on human input to analyze the images and, though the aggregation of such data proves effective, it still requires the system to be reliant on human interaction to be successful. The ability to process images independently of human input proves elusive still and the reason is that in this case, Davis et al. are unknowingly conflating rhetorical situation and context. If we recall how Vatz (1973) specifies that meaning does not exist until a human being attributes it to a given situation, then we can easily see why the device developed in the Davis et al. study required human input. The AI could not, independently, attribute meaning to the individual images because it lacked the rhetorical intelligence to do so. It took human
input to annotate and identify the social situations (Davis et al., 2004), thereby assigning meaning to the situations present in the provided images. Although the device could identify the context at hand, which in this case meant simply physical characteristics of the human body, signifying contextual intelligence, it did not possess the rhetorical intelligence necessary to attribute meaning to the image as is evident by the fact that the system relied on human beings to mark up similar images so that the AI could understand what the symbols in the photograph represent (such as what an unhappy bride might signify). It is likely that the semantic gap that the authors of this study identified was, to some degree, the ability for the AI to recognize a rhetorical situation.

If we look at classic examples of computer science theory and experimentation, we can see how identifying the differences between the rhetorical situation and context, and indeed rhetorical intelligence and contextual intelligence, would better inform how AI could and should be developed.

**A New Look At Turing and Seale**

In 1950, Alan Turing asked, “Can machines think?” Turing noted that the question is a nearly impossible one to answer in any feasible or definitive way and so he invented a test, the now-infamous Turing test. In Turing’s original version of the test, a human user (what Turing calls an interrogator) engages in a game, first with a man and a woman and then with another human and a seemingly “intelligent” machine. Through a written question and answer game, the interrogator attempts to guess which of the first two individuals is male and
which is female. The man and woman each attempt to trick the interrogator into guessing incorrectly. The same interrogator then engages in a second round of the game, only in this round a computer takes the place of either the man or the woman. Turing proposes to ask, then, whether or not the interrogator achieves the same percentage of right and wrong guesses when one of the players is a computer versus when all are human (Turing, 1950). Turing’s test would eventually evolve into a simpler version, cited across countless studies, where the interrogator was tasked with only comparing a computer to another human and guessing which was the human and which the computer.

Turing’s concern when it comes to the outcome of this game is with the computer, naturally – was the computer capable of imitating a human being? Although the data obtained includes whether or not the human could accurately identify the true human, Turing seems to disregard the human player in the game as just another entity with which to provide data points, rather than the crucial decider of the outcome of the game. It will be the human, not the AI, who succeeds or fails in identifying correctly the nature of the AI. In other words, although the human’s role in Turing’s game is crucial to an AI “winning” the game and successfully tricking the human into thinking that they, too, are human, in Turing’s writings, the human player is downplayed or ignored in favor of increased attention on the AI.

Turing’s approach is not inherently faulty, because his primary concern is with knowing whether or not the AI works, rather than knowing why or how it works. This study proposes that we must take this a step further, though. We must also question why AI is perceived to work by the human in Turing’s game and in the real world. If we are attempting
to understand the differences between rhetorical situations and context, and rhetorical intelligence and contextual intelligence, then we are also questioning our expectations as to the AI’s rhetorical intelligence and whether or not AI can, or should, act rhetorically. In order to answer this question fully, we must look at those who would be convinced and moved to action by the rhetor – its audience. A human audience’s perception of the AI, or the potential rhetor, then, is paramount to understanding the interaction between the two.

Another example of the failure to possess both rhetorical and contextual intelligence would be Searle’s (1990) thought experiment, what is now referred to as the Chinese room argument. The argument is as follows: suppose that you do not know Chinese and are placed in a room with baskets full of Chinese symbols and are given a rule book that allows you to match Chinese symbols with other Chinese symbols. The rules refer to the symbols by the way they look, requiring no knowledge of the actual symbols. People outside the room knowledgeable about Chinese now begin sending into the room more symbols, which you then manipulate, based upon your rulebook, and send the results back out of the room. Searle argues that in this example that the “rule book is the ‘computer program.’ The people who wrote it are ‘programmers,’ and I [the manipulator] am the ‘computer.’ The baskets full of symbols are the ‘data base,’ the small bunches that are handed in to me are ‘questions’ and the bunches I then hand out are ‘answers’” (1990, p. 26). Searle argues that the individual in the room (you) does not know Chinese as a result of this experiment and does not begin to understand it after spending time in the room. In other words, you lack the ability to
understand the language, even if to the outside world (the users outside the room) you may appear to be fluent. Searle further argues:

If I do not understand Chinese solely on the basis of running a computer program for understanding Chinese, then neither does any other digital computer solely on that basis. Digital computers merely manipulate formal symbols according to rules in the program … Just manipulating the symbols is not by itself enough to guarantee cognition, perception, understanding, thinking and so forth. (Searle, 1990, p. 26)

In other words, the computer does not actually understand the symbols it manipulates. Using this same train of thought, we can also argue that the same individual may possess contextual intelligence, since they are able to understand how the different shapes fit together given the rule book, but lack rhetorical intelligence because they could never understand how to enact change, initiate a rhetorical conversation, and/or respond to an exigence as rhetor given the information presented to them. In other words, they are able to see symbols – proving contextual intelligence – but are unable to process and analyze those symbols or understand that they possess meaning beyond squiggles and shapes.

However, in this experiment it may also not be necessary for the individual in the room, i.e. the “computer,” to possess rhetorical intelligence if the questions posed to it are simple enough that they do not create an appropriate exigence for the individual to respond to. In other words, if the questions are simple yes/no or descriptive (“What color is the sky?”), rhetorical intelligence isn’t necessary. However, more complex questions (“Do you believe the Senator was justified in his response to the congresswoman’s statement on
abortion? What’s the best route from downtown to the convention center? ) would require an answer that would be satisfactory or appropriate to the individual outside the room given an understanding of culture, values, goals, etc. It would require rhetorical intelligence and, thus, be impossible for the individual in the room to answer. Although contextual intelligence can, in part, help to answer certain questions (such as the best route question example above), it is not simply knowledge of the answer that makes the question a challenge to answer. The individual, or in this case the rhetor, will need to convince his/her/its audience of the answer to the question, and although such a task may require contextual knowledge to discover the answer, it would require rhetorical intelligence to meet the needs, expectations, and satisfaction of the questioner.

Naturally, though, there is some debate over the structure of Searle’s experiment and subsequent argument, which basically states that knowledge of syntax is insufficient in order to understand semantics. He takes Dreyfus’ (1992) argument, essentially, a step further, arguing that even if we could endow a robot with the same physical abilities to explore the world as a human, granting it the same physical experiences as a human, that it would only be programmed to manipulate the symbols it encounters, not any meaning. Melnyk (1996) criticizes the core of Searle’s argument, which suggests that programs are syntactical and therefore we cannot assume they understand semantics. Melnyk does not attempt to argue that Searle’s argument is false, but rather discounts the position because he claims that Searle does not defend this reasoning at all, relying instead on an appeal to intuition and an “account of programs and their implementation which is essentially arbitrary” (Melnyk, 1996, p. 405)
and which Melnyk believes is insufficient. However, if we consider the Chinese room experiment in light of the discussion herein, we can see how the context/rhetoric dilemma actually provides the reasoning that Searle could use to defend his experiment. If instead of testing for a particular type of intelligence, we treat the experiment as a test for two different but related forms of intelligence, much of Melnyk’s concerns with the experiment’s justification are all but eliminated. The key to doing so would be in a careful and strategic selection of questions – some of which would be rhetorical, such as initiating a discussion of a controversial topic, and some purely contextual, such as asking to describe what’s physically in the room – and an appropriate analysis of the answers.

Other scholars, on the other hand, attempt to refute the Chinese Room argument itself. Wakefield summarizes the most common contentions to Searle’s argument as follows:

First, it might be argued that not the operator herself but some other entity in the Chinese room situation meets computationalist criteria for understanding Chinese, and that other entity does understand Chinese. Second, it might be argued that the Chinese room situation does not contain any entity, operator or otherwise, that meets computationalist criteria for understanding Chinese, and that in fact no entity in that situation understands Chinese… the third response, which is to accept the intuition that the operator does not have the usual, conscious understanding of Chinese but argue that the operator *unconsciously* understands Chinese. (2003, p. 288)
Importantly, Wakefield goes on to refute each of these claims. For the first, he points directly to Searle’s own response to the “systems objection” wherein he amends the original Chinese Room example, suggesting instead that the individual in the room internalizes all elements of the system (the rulebook, each symbol, etc.). When this happens, the operator becomes the system and this objection, thus, becomes “irrelevant” (Wakefield, 2003, p. 290). Furthermore, Wakefield points specifically to Block’s (1998) case with Searle. Block claims that an individual can internalize the understanding of Chinese, such that a “program” within their own brain understands it but not the “operator,” so to speak. Wakefield counters Block by stating that within the scenario as Searle constructs it, “there is simply no way for the program to understand Chinese without the operator possessing the same understanding” (2003, p. 293).

For the second claim, Wakefield points to the argument made by Fodor (1991a, 1991b). He summarizes Fodor’s argument as follows: “the introduction of the operator renders the implemented program non-equivalent to the original program of the Chinese speaker on whom it was modeled…the introduction of the operator undermines understanding that would otherwise exist, by rendering otherwise equivalent programs non-equivalent” (Wakefield, 2003, p. 294). However, Wakefield suggests (with support from Searle’s own argument) that Fodor’s argument relies on an incorrect assumption that there is a direct causal link between the individual doing the understanding and the environment. Instead, Wakefield argues that knowledge of Chinese is independent of the environment and, therefore, he discounts Fodor’s claim.
In other words, Wakefield suggests through these two counter-claims that there is a difference between understanding a language and actually using that language in a conversation. Something else exists between the two that is built up over time, through the human experience. This “something else” could be many things, but I would argue that at least a part of it would be the rhetorical knowledge of how to use language within rhetorical situations, the pragmatic dimension of language.

This discussion of Turing’s and Searle’s classic experiments shows how recognizing the difference between context and rhetorical situation can lead to different interpretations of data gathered from interactions between human beings and AI. It furthermore suggests that the knowledge of how to respond to human inquiry may require two different forms of intelligence: contextual intelligence and rhetorical intelligence. When researchers are able to identify and recognize these two different forms within AI, they can understand the interactions between human beings and AI on a more complex and detailed level, as this dissertation will now show.
Chapter 3

Representing the in-between: A rhetorical analysis of AI advertisements

As the re-examination of Searle’s and Turing’s work in Chapter 2 concludes, the nature of the interaction between human and AI is incredibly complex and human expectations and evaluations of AI’s intelligence equally so. In order to better understand the human-AI relationship and the rhetorical/contextual expectations therein, we must be able to differentiate between the elements of rhetorical situations and those of context so that we can recognize when the AI meets (or fails to meet) the rhetorical expectations of the human. It is not enough to know that a rhetorical situation exists, but we must also understand the components of that situation so that we can identify specific instances when the AI is expected to act as rhetor. One way to understand human expectations of AI is through the advertisements of products containing AI.

Stuart Jay Kaplan states that, “advertising serves as an index to the cultural values that advertisers and the public associate with modern communication technology” (1990, p. 38). Ads, he further explains, represent the understanding that the average user holds of modern technologies, and helps them to make sense of the new devices becoming available. This holds true not just with the “modern communication technology” that Kaplan describes, but with most technologies available to consumers, especially those that are highly technical in nature. Advertisements often signify the first exposure that consumers have to new devices hitting the market. In the case of new artificially intelligent products, the ads must inform the
viewer of the purpose of the product but also of its capabilities. Thus, advertisements of AI products often portray a metaphorical representation of the interaction that the human user will have with the AI, one that can be analyzed rhetorically to identify the expectations created for users of the AI. These expectations result from an association that users make between AI and the human being the AI replaces.

For example, Apple attempted to promote Siri as a digital personal assistant (Aron, 2011), which carries with it a set of expectations and assumptions for the user as to the abilities and purpose of the technology. The advertisements, then, serve to both establish an expectation for the human (see see Anderson, 1973) but also to represent in metaphorical or symbolic form the interaction(s) that the human will have with the AI. The ads also serve to predict (or perhaps predetermine?) the individual elements of the rhetorical situation(s) that exist when human and AI interact. I will then use this identification of rhetorical components and expectations in the analysis of the interview data (discussed in Chapter 5) to understand when the AI is expected to act as rhetor.

Thus, this chapter will discuss a rhetorical analysis of advertisements for the products tested or discussed in this dissertation – specifically, smart phones (the iPhone and Droid, or Android, phone – the iPhone’s primary competitor), the iRobot Roomba, and Skyrim, the sequel game to Oblivion. To locate the ads, I conducted a Google image search (using the names of the products as keywords) and looked through popular literature (Wired, Newsweek, Popular Science, and Popular Mechanics) that were running or had run articles in recent issues on artificial intelligence. Since I am using these ads to justify the definitions of context
and rhetorical situation used throughout this overall study, I looked for images representing
the specific products. The online customer service agent, Anna, did not have any
advertisements for it. So, I determined that I would look for advertisements for cell phones
since their intended purpose is similar, as I will expand on momentarily. I specifically
searched for advertisements for Siri and then through the popular literature for other cell
phone advertisements that made reference to AI. Ultimately, I located a series of
advertisements for the iRobot (all using the same metaphor, just differing in the age and
gender of the human) and selected two of them at random to use in this study. For the video
game Skyrim, the Google Search “Skyrim ad” resulted in well over a million hits. The image
I selected was the first advertisement that appeared on the page of results that was of high
quality (I could read the text for the entire ad). For the cell phones, I located about a half-
dozen advertisements between Siri and competing devices and selected the ad for Siri and the
Droid device because they contained more rhetorical elements to analyze than competing
images.

It is important to point out the potential limitation of this analysis. Sheehan (1999)
suggests that metaphors offer a foundation upon which narratives can be built. In other
words, when an individual encounters a metaphor, he or she then invents a narrative to
explain it, based upon their own history and experience with similar metaphors. The
metaphor itself, then, does not create meaning but rather the individual(s) interpreting the
metaphor invent their own meaning within the hermeneutic process (Sheehan, 1999, p. 61).
In other words, the individual may see a different form of interaction in the representation
being presented. Bitzer (1968) and Vatz (1973), however, describe identifiable and distinct elements of the rhetorical situation. As such and regardless of individual interpretation, it is possible to recognize and point out (as I will) elements of the rhetorical situation (audience, constraint, exigence) that are being invoked and use these elements to describe the rhetorical complexity of the interaction between human and AI. We can still use this analysis to reiterate how the elements of a rhetorical situation differ from those of context and identify the roles that the different AIs play in their respective rhetorical situations.

I must also expand on the fact that the automated customer service agents are not represented in the ad analysis in this chapter; for the same reasons a company would not likely release an ad promoting individuals within its call center, rarely do companies release ads touting their automated customer service agents. For example, Ikea only refers to Anna in a small aside in their 2012 print catalog (see Figure 2).

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**Ask Anna**

> Before calling your local store, Ask Anna, IKEA’s automated online assistant. ANNA is available 24 hours a day, 7 days a week to help obtain product information, check stock availability, get home delivery quotes, request missing hardware, and provide directions to your nearest IKEA store! Meet ANNA at IKEA-USA.com

**Figure 2: Reference to Anna in Ikea 2012 Catalog (Ikea Catalog, 2013)**
Thus, smart phones were selected as an alternative, given that they are discussed elsewhere in this dissertation and, as will be seen in the following analyses, they respond to a rhetorical situation similar to automated customer service agents and fulfill a similar role: that of a personal assistant.

**Smart Phones: How May It Help You?**

With the introduction of the heavily touted Siri, Apple spawned a wave of copycats attempting to jump on the AI bandwagon. Every new cell phone, it seems, has attempted to become “smarter” so that it can assist its human counterpart better than its competitors. This assistance comes in the AI’s ability to act as a personal assistant, an indicator that to many “smarter” also means “more rhetorically capable.” According to the Oxford English Dictionary, a personal assistant is an individual who is “attached to someone in a close or exclusive subordinate capacity.” The assistant would, presumably, know the supervisor well and be able to act in his or her stead to organize a daily schedule, make reservations, confirm appointments, etc. The assistant would need to be able to suggest courses of action that would be most appropriate or beneficial given a set of circumstances set by the supervisor. Many of the conversations between assistant and supervisor would constitute a rhetorical situation because the rhetor, in this case the assistant, would be attempting to convince the supervisor of a particular course of action – the very definition of a rhetorical act. He or she would need to possess the rhetorical intelligence to know how to construct an argument that would be accepted and acted upon by the supervisor. For example, he or she might be asked
to recommend and schedule a lunch meeting with a potential client. The assistant would need to be able to not only select a restaurant that meets the dietary requirements and preferences for the supervisor, based upon the supervisor’s input, but also select a location that would be appropriate and well received by the client based upon what the assistant has been told about the client. The assistant must also possess the necessary contextual intelligence needed to recognize the limitations of his or her own speech or writing and those of the supervisor to engage in the suggested act. For example, he or she might need to make flight reservations for an upcoming business trip, and would therefore need to schedule the flight at an appropriate time (giving enough time to travel to and from each airport) while also remaining within the budgetary constraints and company policies (e.g., always book supervisors in first class unless there are budgetary restrictions). The interplay between rhetorical and contextual intelligence is inherent to rhetorical action given the interconnectedness between the two – to possess rhetorical intelligence, one must also possess contextual intelligence – which would logically then make it an expectation of any AI that attempts rhetorical action. Case in point, the first example above requires both rhetorical and contextual intelligence whereas the second example does not; in the case of booking flights, personal preference and other attributes that could only be learned or gleaned through a rhetorical understanding of the situation are nonexistent. The assistance must make a “reservation” in a sense just like in the first example (booking a plane ticket is essentially reserving a seat on a plane), but in the second example his or her actions are guided exclusively by contextual information – time of day, company policy, and budget constraints. To expect commercially available AI to be
capable of rhetorical action similar or identical to a human rhetor is unrealistic and excessive. Nevertheless, the ads perpetuate this expectation.

This brings us to the question: do ads for cell phones metaphorically represent this relationship, rhetorical situation(s), or even the two forms of intelligence required of the AI? Furthermore, the relationship between a personal assistant and a supervisor is one reliant upon the assistant being able to offer helpful (and, therefore, rhetorical) suggestions to questions and actions on the part of the supervisor. Can the phones actually fill this role?

Two ads were selected for competing products, based primarily on the competing software on the phones rather than the physical devices: the Apple iPhone 4S and the Droid X. Since the iPhone 4S was the first introduction to Siri, an ad for this version was chosen over the newest incarnation of the iPhone.

The iPhone ad (see Figure 3) shows the phone in the hand of a human user. Given the placement of the hand, the ad suggests that the user of the iPhone could be the viewer, although the screen of the phone refers to the user as ‘Karen.’ The unfocused background suggests that the human viewer also has placed his or her focus solely on the iPhone, ignoring for the most part the world around him or her. The phrase, “What’s my day look like?” appears above the phone, implying that this phrase was just spoken into the phone, and Siri’s response appears on the screen of the iPhone.
Rhetorical Situation. The question requires more than information like a question, such as “what events do I have scheduled for today?” or “show me my calendar” would imply. Rather, it creates an exigence for Siri. The question demands that Siri assess Karen’s schedule and relay that information back to her, likely so that he can make a determination as to how to begin the day. According to Bitzer, an exigence is rhetorical “when it is capable of positive modification and when positive modification requires discourse or can be assisted by discourse” (p. 7). If Karen hopes to have lunch with a friend today, and wants to know if he
can fit such an interlude into the day, then he is indeed going to be making a decision based upon the information provided by Siri.

Additionally, we can see how Karen is intended to be the audience in this situation. Presumably, Siri has prior knowledge of Karen in the sense that Siri has access to all of her prior actions on the phone. Siri knows what websites she’s visited, what appointments she’s had, who she’s called (and how frequently), etc. From this data, Siri can make assumptions and formulate the “audience addressed” construct as Ede and Lunsford (1984) describe it. We can also assume, then, that Siri would know whether or not Karen often has many meetings throughout the day or few – hence, Siri’s assertion that Karen has a busy day ahead of her.

Thus, we see how the ad presents an exigence and audience, both of which are necessary to classify this image as a representation of a rhetorical situation. The final component of the rhetorical situation, constraints, can also be seen within the ad. The casual language Siri uses to report back the busy day – “Another busy day, Karen!” rather than “The day appears busy” – points to the colloquial constraints on language between Karen and Siri. The time of day, presumably in the morning given the question being asked and that the background of the image alludes to Karen awaiting a train, also suggests an urgent need to know the answer. In other words, all three elements of a rhetorical situation exist within this ad.

**Rhetorical Intelligence.** Note how the primary text does not read, “You speak. Siri answers,” but rather, “You Speak. Siri Helps.” The text suggests a higher form of intelligence
for Siri in that she is capable of more than simply pulling up answers to questions as previous iPhones could. She can actually assist and empathize with the speaker, much like a personal assistant. However, what appears on the screen of the iPhone does not completely reflect, as strongly, this higher form of intelligence. Siri has pulled up the individual’s calendar along with a statement of, “Another busy day, Karen!” Siri has indeed made a judgment call on the individual’s schedule, deducing that she is busy and stating as much. Siri answered Karen’s question and addressed the rhetorical exigence, acting empathetically towards Karen by expressing how busy Karen’s schedule appears, and Karen will likely make a decision and act on the information and statement provided by Siri. We can say with some certainty that this ad, then, implies Siri’s rhetorical intelligence because she responds to an exigence by addressing an audience and bringing about action (we presume) in the audience. A ‘busy’ day is different from person to person. For some, having more than two or three meetings in a day could constitute being busy, whereas for others, having more than ten meetings in a day would not only be normal, but expected. In order for Siri to have acted rhetorically, she would need to have had experience conversing with Karen, observing Karen’s schedule over the long term, and being able to judge and respond appropriately based upon this information and other knowledge about Karen and her temperament. If we assume this to have occurred previously, which the ad certainly alludes to with “Another busy day, Karen!,” suggesting she has had busy days before and therefore a history exists between Siri and Karen, then the statement Siri makes would be one derived from knowledge of a familiar audience with known expectations and constraints. Karen, presumably, will be acting upon the knowledge
gained that he has a busy day ahead of her (adjusting her schedule, preparing herself for the day, etc.) and the satisfaction of knowing that her personal assistant aided her in understanding what’s to come during that day.

This being said, we cannot know concretely, simply based upon this image, if Siri is correct in stating that Karen has a busy day, so we cannot state outright whether or not Siri succeeded in her judgment claim. If, for argument’s sake, she had not and Karen’s schedule for the day is actually not a busy one, the situation represented in the ad would constitute an example of when Siri displayed contextual intelligence but not rhetorical intelligence. Siri would have simply taken data about the calendar, tallied up the number of appointments and, based upon some arbitrary threshold likely set by a programmer at the point of her creation or based upon data she sought about calendars online, stated that the day was a busy one. Regardless of whether Siri definitively shows rhetorical intelligence or not, the ad does suggest that the human being expects and should expect rhetorical action – a judgment call and likely follow-up statement or action – from Siri. Whether Siri possesses the rhetorical intelligence to be able to perform said action remains to be seen.

We can tell from the ad that Siri possesses contextual intelligence, and indeed what type of relationship exists between iPhone and iPhone user. The tagline below the phone, “You speak. Siri helps. Say hello to the most amazing iPhone yet” is very careful in its wording. It pulls from the two elements of context: historical and social. The statement, “Siri helps” rather directly indicates a social relationship between “you” and the phone, one where the user holds a position of authority. The use of the term “helps,” in fact, points to both the
contextual and the rhetorical intelligence of Siri. At the most basic level, the ability to display information on the screen (the calendar, for example) is indicative of contextual intelligence and would seem “helpful” to the user. At the more complex level, Siri’s ability to make a judgment call based upon contextual information indicates Siri’s rhetorical intelligence; her judgment may be either helpful or unhelpful based upon the rhetorical situation present.

Additionally, the use of “yet” in the final sentence connects this phone to its predecessors. It pulls from the prior knowledge that the user may have of the iPhone, but emphasizes that the 4S is better than versions that had been offered previously. This prior knowledge will act as a constraint on any conversation between Siri and the iPhone user, as the user may have developed expectations as to the iPhone’s capabilities based upon prior versions of the phone. Although the ad does not state as much, this superiority comes from the presumptive rhetorical intelligence of the phone. Prior iPhones contained all of the same data and information as the iPhone 4S; Siri now acts as a mediator between the user and his or her information on the phone, making it easier to access and understand. Such mediation suggests the need for, in many circumstances, rhetorical intelligence.

Importantly, though, the emphasis in the ad on this interaction between phone and user points to the contextual focus of the interaction. The mobile phone, by its name, is one defined by its environmental context. The ability to be mobile but still accessible by phone is what made the initial products revolutionary. However, in this image, the environment and physical surroundings of the human being and the phone are out of focus. Although they are still present, and therefore accessible to the phone and human, they are not the focus of the
relationship between the two. In other words, the ad emphasizes that the iPhone 4S is more than just a mobile phone. It is a *smart* phone, capable of doing more than recognizing its location and surroundings. It actually attunes itself with the user, an ability distinctly indicative of rhetorical intelligence over contextual intelligence.

It is important to note here how the image distinctly distinguishes Siri’s potential rhetorical intelligence from her contextual intelligence, although perhaps not intentionally. On the screen of the phone we see the rhetorical statement about the busy day in a speech bubble, and Siri has presumably also reported this information audibly. Below the speech bubble, with an entirely different font color and background color, we see Karen’s calendar, something that only requires contextual intelligence in order to access. However, the ability to process the calendar information – to know what the color coding for each entry means and who each person is – would require rhetorical intelligence. Although the statement about Siri “helping” could be taken to represent contextual intelligence, rhetorical intelligence, or both, suggesting that advertisers either conflate the two concepts and/or fail to understand either of them, the screenshot on the phone shows the result of the two forms of intelligence separately. In other words, although human users may conflate the two terms, the AI and its programming may not.

In summary, the iPhone 4S ad shows how the interaction between Siri and Karen represents a rhetorical situation through its three components (exigence, audience, and constraints). It suggests that possession of rhetorical intelligence by an AI can be exhibited through judgment calls made and shared by the AI and through the AI being attuned or
focused on the needs of the user over other contextual pieces of information (such as the environment, in this case).

Figure 4: Droid Ad (Google, 2010)

The Droid advertisement (see Figure 4) takes a similar approach to representing the rhetorical situation and rhetorical intelligence of the AI, albeit through an entirely different set of imagery. Rather than directing the viewer’s attention to the image of the phone as in
the iPhone ad, the Droid ad directs attention towards text at the center of the page. The text, which reads “Locate stars, planets, or a decent taco,” is framed by application (app) icons arranged to form a globe at the top of the page and images of the phone and supporting text at the bottom. The supporting text describes three apps and features of the phone that enable it to do the locating mentioned in the primary text: Google Sky Map, Layar, and the ability to run multiple apps simultaneously.

**Rhetorical Situation.** Forcing the phone user to read through reviews of a restaurant to make the determination of quality hardly constitutes the instant gratification that the user desires, as is implied by the text, “DROID DOES INSTANT GRATIFICATION,” which appears below the image of the phone on the bottom right side of the ad. The timeliness of responses to a user, therefore, is paramount to the success of the Droid’s AI and, ultimately, an indicator of one of the many constraints within the rhetorical situation the ad represents. The face of the phone in the ad shows the response to the question for the location of a “decent” taco restaurant. The user, in this case, then becomes the audience and the phone must satisfy the exigence of answering the question with a helpful response, including the name and location of a restaurant based upon a judgment call as to the quality of the restaurant’s tacos. The constraints on the response would include those typical of anyone evaluating the possibility of dining at a particular restaurant: cost constraints, location and availability (is it open at the desired date and time?), quality of the food and service, and personal preferences (formality, modern/traditional aesthetics, etc.) for the user. The AI
would then need to base its response on the needs of the user (a “decent taco”) along with deciding on an appropriate understanding of the descriptor “decent” within these constraints.

**Rhetorical Intelligence.** The abilities of the phone touted by the text in the ad, like the question and response posed by the iPhone ad, suggest that the Droid can do more than simply locate information and provide that information to the user. It can process, for example, all of the locations and reviews for local Mexican restaurants and respond to a query input by the phone user with not only the name and location of a nearby restaurant that serves tacos, but one that serves *good* tacos. The phone can also presumably recognize the environmental constraints of the question being asked, such as the physical area to search within and any economic (how much is a taco?) or time constraints (is the restaurant open during the desired dining period?) that may exist. In order for the Droid to convince the user to visit the recommended taco restaurant, the phone must either have established a trusting relationship with the phone user (which would have involved multiple instances of rhetorical situations, exigences, and rhetorical responses on the part of the phone) or be able to, in its on-the-spot response, parse the information it has gathered and convince the user that the restaurant it suggests does serve “decent” food.

The first part of the AI’s response (locating nearby restaurants), then, would require the phone to possess contextual intelligence whereas the second (choosing one of those restaurants) would require rhetorical intelligence. The screenshot does not show any reviews of restaurants being presented to the user, suggesting that the phone itself made the determination that the restaurant presented makes a “decent taco” and is, therefore, the rhetor
within the situation being represented. This would then mean that the AI within the phone possesses rhetorical intelligence.

The phone image does not, however, eliminate the possibility that the phone has accessed reviews in order to make its case to the user, nor does the image indicate whether the restaurant meets the location, pricing, or availability needs of the user. It is possible that the restaurant being presented is simply the one rated the highest on a pre-determined website that the phone accessed, which would make the reviewers the actual rhetors in this situation and refute the possibility that the phone possesses rhetorical intelligence. Thus, we can make the assertion that in order for a human being to recognize the rhetorical intelligence of an AI, it must be able to recognize that the AI itself is making rhetorical statements in response to the questions or requests they make of it.

Overall, the ad represents the rhetorical situation within which the interaction between the AI within the Droid and the human occurs while also suggesting that the AI is capable of rhetorical intelligence. It supports the same conclusions as the iPhone ad: that one way for AI to display rhetorical intelligence is through judgment calls. This ad, however, takes this concept a step further and shows how the AI must also make it clear where that call originates from, establishing a part of the ethos appeal for the AI.

**Video Game Ad: When a Little Action Means a Lot**

Since the game tested for this dissertation was released several years ago, I was unable to locate the print advertisements for the game. I was, however, able to locate an ad
for the game’s successor, Elder Scrolls V: Skyrim. The two games take place in the same fantasy world and consist of very similar game play, such that much of the results of the analysis of the Skyrim ads can be applied to its predecessor, Oblivion.

Figure 5: Skyrim Screenshot Ad (Bethesda, 2011)

The ad for Skyrim (see Figure 5) is similar in its simplicity to that of the iPhone. Although the game itself, much like Oblivion, consists of a large, expansive world available for the player to explore, the ad does not show a bit of this world. Instead, it concentrates on the direct interplay between the human player and the non-player characters, or NPCs, within the game, similar to the blurring out of the surrounding train platform of the iPhone ad. NPCs
are the virtual embodiment of the AI within the game; they exist to interact with the player’s character, push the game story forward, and to add richness to the world within the game. The Elder Scrolls series, as discussed in Chapter 2, is known for the advanced AI of the NPCs, so one might expect the game developers to promote the NPCs in the advertising campaign for the game. The interaction between the NPCs and player occurs within a strictly defined and confined game space. This space, then, naturally limits rhetorical action — but does limited potential necessarily correspond to limited expectations of the rhetorical capabilities of the AI for the player/user?

The Skyrim ad attempts to focus the attention towards a singular interaction or encounter between the viewer (or player) and the NPC shown in the ad. Role-playing games are designated as such because the games are social in nature; in order to beat the game players must interact with other characters within the game. Thus, the ad shows a figure looking outwardly towards the viewer, suggesting that those within the game (the NPCs) seek to interact with those outside it. The imposing nature of the figure, cloaked in smoke and shadow, forces the viewer to see themselves in a submissive role as player; they will undoubtedly be challenged by this character, whoever he may be, within the game. By emphasizing in the ad the interaction between player and NPC, the ad focuses the viewer’s attention on that portion of the game, rather than the massive landscape within the game. In other words, the ad specifically attempts to place focus on the social (and, to a degree, historical) context and rhetorical capabilities of the NPCs rather than the environmental contextual information of the world within the game.
It is important to note, though, that the ads could not represent the environmental context of the player to the game, only the environmental context of the player within the game, or where the player will interact with the NPCs. Although the ad does not show this environment directly, focusing instead on the interaction between player and NPC, it does allude to it. The twisted and jagged rock upon which the figure stands suggests a harsh wilderness, one perhaps ravaged by time or war. This rugged landscape is then reflected in the clothing the figure wears (mostly leather and fur) and his choice of weaponry.

Furthermore, the figure seems to be looking outward at the player, acknowledging his or her existence. He holds two swords in his hands, establishing a relationship between the player and the NPC as one of challenge. The NPC seems to understand the history between the player and the game; the figure seems to be in a ready stance, moving slightly towards the viewer. Although his swords are drawn, they are not in a defensive or attack position. This direct but nonthreatening stance suggests that the AI knows that the player may understand the concept of game play, hence the drawn swords, but not know how to fully interact with the game yet, which would explain the seemingly hesitant movement on the part of the NPC. The rugged environment suggests that the exigence to which the NPC is likely responding results from the appearance of a new and unknown individual (the player) who would generally be treated as a potential threat within the genre of the fantasy RPG. Given the NPC’s appearance, his response to such a threat would likely be violence.

Interestingly, this image is staged in much the same way as the Siri ad. In both cases, the AI is “looking” at the viewer, engaging and recognizing the viewer. In both cases, the
environment is downplayed in favor of emphasizing the interaction between the viewer (or user/player) and the AI (phone or NPC). Finally, both images suggest an exigency that may not be fully stated yet. However, in this image the rhetorical elements are not nearly as prominent; the question of the NPCs rhetorical capabilities not as emphasized or, so it seems, as relevant. The focus here, though on the interaction between NPC and player, is more physically focused than socially, like in the iPhone ad. Though this image does contain elements of the rhetorical situation, and is definitely constrained by such rhetorical concepts as genre, it creates very different expectations of rhetorical intelligence than the iPhone ad.

Case in point, the imposing figure in the ad looks straight out at the viewer, daring him or her to accept his challenge and enter the world of Skyrim. The end of a dragon’s tale curls around the figure, attempting to provoke the curiosity of the viewer (as the entirety of the dragon is not shown) while also emphasizing the danger of the quest; dragons, traditionally, are difficult foes in the fantasy genre. Hence, the NPC is clearly constrained by the fantasy role-playing game genre – the horns atop the figure’s head indicative of his villainy, evoking the horned devil iconography that many video games reference (see, for example, Bowser in Super Mario Bros.) and the dragon being a stereotypical villain in the fantasy genre (see, for example, The Hobbit). The choice of weaponry – the sword – is also evidence of the genre. The audience, the players of the game, must decide whether or not to interact with the figure present, and in what way. The fact that the figure in the ad has drawn his or her swords suggests that he is attempting to physically challenge the NPC, but his tentative stance also indicates he’s anticipating the move of the player. In other words, he’s
challenging the player to attack but will determine his next move based upon how the player handles himself within the game (does he, proverbsly, drop the sword while swinging it or show expert swordsmanship in thrusting towards the figure). In other words, the audience, the viewer, is being asked to make a physical move in response to the NPC, marking the start to a physical altercation that will either end in either the NPC or the player’s defeat or the player becoming more accustomed to the game play of Skyrim.

As one who has played video games might already know, much of the interaction between NPC and player is scripted, though. Therefore, the threatening stance of the NPC is not in response to the player’s actions, but rather to the programming of the storyline within the game. However, does this necessarily negate the possible rhetorical intelligence of the AI or, more importantly, a player’s perception of the NPCs? In many role-playing games only the script (the words spoken or written by the NPCs) is pre-programmed. The physical actions of the NPCs may be guided by the script but are ultimately up to the NPCs themselves. In the case of Oblivion, the predecessor to Skyrim, for example, the Radiant AI system grants a certain level of autonomy to the NPCs that allows them, for the most part, to determine their own actions and, in fact, conversations (Onyett, 2006). To the average player, however, this autonomy may not be expected or even recognized due to the game play emphasis on physical confrontations. Indeed, the fact that this ad focuses on a physical interaction between player and NPC over a spoken/text-based one, then, further emphasizes this fact. In other words, though the NPC may be capable of rhetorical discourse, his/her physical actions instead emphasize an “embodied rhetoric” that elicits an emotional and
physical response in the viewer (Cyphert, 2001, p. 163). The ad suggests that the rhetorical situations within the game exist not within the discourse with the NPCs but in the physical altercations and interactions the player will have with these characters. In much the same way that the action scenes within a movie will advance the plot and elicit a rhetorical and physical response in the viewer (Cyphert, 2001), the same will occur within a game world such as Skyrim (or Oblivion).

However, what this ad also suggests, then, is that the expectations for rhetorical intelligence within a video game are much different from those of AI that exist within the real world. Rather than rhetorical intelligence being exhibited through discourse, in the game this intelligence would be exhibited through action and only those actions that advance the plot and elicit a response from the player. This, then, limits the expectations for the player not just in how the AI will exhibit rhetorical intelligence but how often it will do so.

**Robot Ads: Replacing the Human with the Artificial**

The purpose of the automated vacuum cleaner is to complete a simple task: vacuum a floor. This task is most commonly completed by a human being, utilizing an electronic tool (a vacuum) to finish the task. The artificial intelligence, then, in the device designed to complete this task needs to be able to navigate a physical environment once given the command by its human counterpart. The iRobot Roomba seeks to do just this by fulfilling the role of servant to its human owners who presumably do not enjoy the act of vacuuming. It
must possess the contextual intelligence for navigation, but does it necessarily need rhetorical intelligence? Does a rhetorical situation even exist?

Figure 6: iRobot Female Ad (iRobot Bees, 2012)

Figure 7: iRobot Male Ad (iRobot Elastic, 2012)

**Rhetorical Intelligence.** Two advertisements for the iRobot (see Figure 6 and Figure 7) contain clear metaphorical representations of the device that help to answer these questions. In the ads, the physical device is placed over top of the heads of the human models, suggesting that the robot itself is replacing the brain power of the human being who normally would control the vacuum cleaner. From a technical standpoint, this representation suggests that the iRobot is capable of seeing like a human, thinking like a human, and hearing like a human, all the tasks required for vacuuming a floor. The ad is, essentially, the epitome of anthropomorphizing the iRobot. It, unlike the other ads discussed in this chapter,
attempts to directly and purposefully answer the question of intelligence (both contextual and rhetorical) for the AI. Whereas the other ads display distinct, identifiable situations where an interaction between AI and human is occurring, the metaphor displayed in these ads attempts to take a device whose purpose is one solidly grounded in context – it is almost entirely reliant upon the environment for its actions – and place it in a rhetorical, social situation in order to make a claim for rhetorical intelligence; the add assumes the user does not presuppose that the iRobot possesses rhetorical intelligence, and therefore it must artificially create a social situation for the device in order to make the claim.

The iRobot, clearly the least anthropomorphic of all the AI examined in this dissertation, makes the strongest claim to rhetorical intelligence not because it is trying to claim rhetorical intelligence but rather because it is trying to engage the user on a social level. Take, for example, your car. Individuals often anthropomorphize their cars, entities that at their most basic level are decidedly not rhetorical, so that a menial task can become one that is entertaining, fun, and enjoyable for the driver. In other words, the human being acts as both rhetor and audience while the car acts as a constraint. The car need not be capable of rhetorical intelligence in order to be an important and necessary factor in the rhetorical situation present; however, it must have contextual intelligence. Let us examine this idea further.

The advertisements leave out any representation of the vacuum actually performing the task that it is designed for. They assume that the human will simply accept the fact that the iRobot is capable of completing the task because of its ability to mimic the intelligence of
the human being whose face it replaces. This assumption relies upon the ability of the human user to differentiate the two different forms of intelligence discussed in this dissertation. If a human user can recognize rhetorical intelligence (something the iRobot lacks) from contextual intelligence (something the iRobot possesses in abundance) separately, then the product will be well received because no assumption will exist for rhetorical intelligence. If, however, a human user cannot differentiate between the two, and conflates all forms of intelligence into one, then the human will assume the iRobot capable of interactions on a higher level than is actually possible.

The ad, however, does not help the human user. It illustrates the contextual intelligence of the iRobot through its placement of the device over the human face, but does so by conflating all forms of intelligence into one. Replacing the human head with the robot metaphorically represents its intelligence and sensory capability, ignoring to a large degree the environmental context within which robot and human interact. Given that the primary hurdle to the iRobot is navigation of an environment, the fact that the ad largely ignores the environmental context focuses the attention of the ad onto a more social interaction between the iRobot and the viewer. The ad metaphorically represents the ability of the iRobot to recognize and respond to commands and complete a task easily performed by a human who has vacuumed before because it can see and hear like a human. In other words, by leaving out a visual display of environment in favor of emphasizing the artificial senses of the robot, the ad represents how the interaction between human and robot exists within a particular context that has just as many social elements as environmental. In other words, it is
emphasizing a social, possibly even rhetorical interaction between the viewer and the iRobot that will not actually exist. Simply navigating a room does not provide evidence of rhetorical intelligence, nor does vacuuming a floor. The two are menial, typified tasks that only show the contextual capability of the device as there is no significant human-AI interaction (the human presses the start button, then leaves the iRobot to its task). Indeed, as was discussed in Chapter 2, the iRobot’s ability to complete its assigned task of vacuuming does not signify rhetorical intelligence or represent the existence of a rhetorical situation because there is no rhetorical intent present for the AI or human and the exigence, if one exists, cannot be modified by discourse (see Bitzer, 1968). The ad’s insistence on representing this intelligence, though, results not from its attempts to promote a capability that doesn’t exist but rather to stress the enjoyment that a user might find as a result of using the iRobot – a tool is not by its nature enjoyable; this robot is more than a tool.

The key to this analysis lies in the small text at the bottom of the ads. The ad with the male model, Figure 7, states “I once vacuumed my living room from another state. / I assure you I do not have some kind of elastic superarms. / I have a Roomba so I don’t have to be home to clean my home.” If the speaker in the ad wishes to not vacuum, and not be home when the vacuuming occurs, then he must hire another human being to vacuum for him or purchase an automated system. However, in the ad with the female model, Figure 6, the text reads “I enjoy vacuuming like I enjoy being stung by a swarm of bees. / I look forward to it like I look forward to a root canal. / I have a Roomba so only the dust bunnies feel the pain.” This ad suggests that the act of vacuuming is a painful experience. It provides justification
for the argument that the average human being might want vacuuming to be fun, but also why hiring a human being to fulfill the same role (in other words, a maid or housekeeper) might be undesirable – you would simply be passing that pain onto another human being. The task before the iRobot then is to make vacuuming fun.

In order for this product to succeed, the robot must prove to be just as capable as a human being fulfilling the same role, just like with the iPhone (vs. a personal assistant) and to a lesser extent the NPCs in a video game (vs. other players). However, unlike the iPhone or NPCs in the game, users of the iRobot need not expect rhetorical intelligence from the iRobot because the interaction between AI and human is not a social one. The AI must rather actively show contextual intelligence by successfully vacuuming a floor just as efficiently and effectively as a human being, not only avoiding obstacles and achieving the desired cleanliness of its owner, but also doing so in a human-like manner – not repeatedly vacuuming the same area, for example. If one area of the floor is particularly dirty, the iRobot must spend extra time on that area as well, maybe even focusing its attention on that spot. In other words, the iRobot must vacuum to the same desired level that its human counterpart would so that the human being can sit back and enjoy himself or herself, knowing that the vacuuming will be done to his or her satisfaction.

Importantly, it must also represent something distinctly not human. In 1970, Masahiro Mori described the concept of the “uncanny valley,” or the idea that a robot that appears too human-like can be unsettling to human beings (Sofge, 2010). The study, initially debated and now all but accepted as fact, instructs computer scientists to avoid creating robots that are too
human-like, to instead focus efforts on creating entities that are distinctly inhuman in appearance (Sofge, 2010). Similarly, if vacuuming is an undesirable experience, then the human being would presumably not want someone capable of feeling the pain of vacuuming to be presented with the task. Thus, the iRobot, though replacing the human, must represent something ‘better’ in the sense that it is inhuman. The ad successfully shows this through the juxtaposition of robot over human. The iRobot looks nothing like a human head, but it still claims to possess similar capabilities to one. According to the theory of the uncanny valley, if the iRobot looked more human, for example if it was the actual size of a human being with a vacuum in one hand, the likelihood of a human being using the robot would dwindle when compared with a device, as the iRobot is currently designed, that does not appear human-like.

Neither the ability to appear inhuman or to vacuum a floor, however, requires rhetorical intelligence. Although the ad suggests that the iRobot is capable of a higher level of intelligence than the standard vacuum, it does so to emphasize that the iRobot should be seen less as a tool and more as a replacement for a human performing the task for which it was designed. When we return, then, to the research questions of this dissertation, we can see how the iRobot fills a unique role in this analysis. How do the attributions of intelligence differ within a rhetorical situation when the AI does not fulfill the role of rhetor but instead acts as one of many constraints? Do users still attribute any aspects of intelligence (rhetorical or otherwise) to the device or do they deem it unintelligent considering it need not act rhetorically? The analysis in later chapters will answer these questions.
Conclusion

All of these analyses show how the ads representing the interaction between human and AI indicate that not only do these interactions exist within specific, identifiable contexts, but they also constitute rhetorical situations. The ads furthermore represent to varying degrees expectations and examples of the rhetorical intelligence of the AI. They, importantly, suggest not only that this intelligence exists, but also how the AI exhibits it within rhetorical situations and, therefore, what to look for in the description of the AI by human users. Specifically, these include: making and sharing judgment calls, being attuned or focused on the needs of the user over other contextual pieces of information, making it clear that the AI is the one making decisions (as opposed to simply reporting information from outside sources), and responding to an exigence both physically and verbally. This analysis also suggests that the connection between rhetorical intelligence and the role of rhetor may not be mutually inclusive, and that users may or may not attribute intelligence differently when the AI still engages the rhetorical situation but from a role other than rhetor (as constraint or audience, specifically). These suggestions then can and will be used in the following analysis of individual accounts of interactions between human beings and AI to indicate where, when, and how users attribute intelligence to AI.
Chapter 4

Study Methodology

Now that we are able to recognize the rhetorical situation, as Bitzer (1968) defines it, within the interactions between human beings and AI, and the AI’s corresponding rhetorical intelligence, we can seek to address the central problems this dissertation is attempting to tackle. The prior chapter describes instances where AI must meet the expectations, in some cases rhetorical ones, of the user. We saw from this analysis as well how more social, and indeed rhetorical, an interaction between AI and human, the greater the expectations for rhetorical intelligence. This expectation must then be met explicitly and recognizably through (to summarize) judgment calls, attunement or focus on the needs of the user, autonomy, and response to a rhetorical exigence.

The advertisement analysis shows how we expect humans and AI to interact within situations – what the remainder of this dissertation and the following analysis attempts to show, then, is whether these situations carry any implied rhetorical meaning or not. Consequently, several questions then also arise that must be addressed. Can AI exhibit rhetorical intelligence when it needs to in order to meet the expectations of the human beings interacting with it? Can it draw from the contextual information it already knows how to identify and process it in such a way that it meets an exigence, or does its programming limit it to solely contextual intelligence? Finally, and most importantly, do human beings interacting with the AI recognize the rhetorical intelligence (or lack thereof) or contextual
intelligence (or lack thereof) of the AI and reference this intelligence and/or the rhetorical situation that exists when asked to describe their interaction with the AI?

We have already begun to answer, to some extent, the first research question of this dissertation through the analysis of the ads in the prior chapter: What expectations and preconceived notions do users have of AI? To some extent, ads partially establish the expectations users have of new products when they first encounter them. They do so, as the analysis in the last chapter showed, by associating the AI with a stereotype or role with which the user may have prior experience or knowledge. The relationship between a human and this stereotype or role often leads to expected rhetorical interaction(s). Thus, this dissertation tests whether these expectations still hold when one individual in the interaction is replaced with the artificial. I further test this assertion in the interviews conducted and discussed in the remainder of this dissertation by using the expectations and associations discussed in Chapter 3 as part of a framework for analysis.

**Which Is Which: Procedural Definitions of Context and Rhetorical Situation**

In order to investigate the answers to these questions, we must first identify which definition of context this study will use so that we can identify the components of context separately from those of the rhetorical situation within a given interaction or representation of an interaction. Undoubtedly, I will use Bitzer’s definition along with the modifications suggested by Vatz (1973) and Consigny (1974) for the rhetorical situation components. To
review, in order to describe the rhetorical situation present in the interactions between the participants and AI, we must identify the following elements: the rhetor (which, according to the analysis of the ads conducted in Chapter 3, we can presume is the AI), the exigence, the constraints, and the audience (which we can also presume will be the participants). An exhibition of rhetorical intelligence will exist when the AI successfully fulfills the role of rhetor in meeting the expectations of the user. Furthermore, the audience must accept the rhetorical claims and arguments made by the AI.

There are multiple definitions of context in use throughout the literature, as discussed in Chapter 2 and as evidenced by the need for workshops at the Computer-Human Interaction (CHI) conference to discuss the topic. What the results of these two workshops provided was not so much an operational definition of context but rather a suggested approach to researching contextual elements. The workshop attendees decided that the best way to examine context operationally in controlled environments is to develop a model of context that involves a structured task for a user and that involves both conceptual and perceptual components of context. For example, Crowley, Coutaz, Rey, and Reignierl, “propose[d] a software architecture for observing and modeling human activity” (2002, p. 117). In order to do so, they attempted to create a system for modeling the identification of components within contexts across differing situations. They state that, “a key aspect of our approach is that we recognize that a context aware system must be able to sense users and their activities” (Crowley et al., 2002, p. 117). Thus, their model (and, therefore, their operationalization of context) relies on the roles and relationships between the user(s), the computer/AI, and the
surrounding environment (Crowley et al., 2002, p. 118). This study follows the suggestions laid forth by the conference attendees and as exemplified by the Crowley et al. study.

The controlled interviews and study involving AI for this dissertation incorporated a structured task that a user would presumably already be familiar with, allowing them the focus and time to be both a participant in the study and an observer of the AI. The definition that I use, thus, is focused upon three components of context that persist across the various definitions of context discussed in Chapter 2 and which address both the conceptual and perceptual aspects of context the workshop attendees suggest are crucial for an operationalized (and testable) definition of the term. The working definition of context that this study will use is as follows: Context consists of identifiable and measurable environmental, social, and historical factors not invoked rhetorically by the user or the AI but present in or around the interaction between the two.

Each of these three factors is mentioned, in one form or another, in almost every definition of context so far discussed. Therefore, these three common points will be used to operationalize context within this dissertation. Although more than historical, social, and environmental factors may contribute to context and influence the interaction between a human being and AI (as the review of the literature in Chapter 2 suggests), literature from both Rhetoric and Computer Science (see Consigny, 1974; Crowley et al., 2002; Davis et al., 2004; Dey, 2001; Hyland, 1998; Lucas, 1988; Maskery and Meads, 1992; Maskery et al., 1992; Schilit & Theimer, 1994; Schilit et al., 1994; Smeulders et al., 2000; Vatz, 1973) leads me to believe that these factors prove to be the most influential for both the AI and the
human and the most critical to examine in a complex, multi-dimensional study. Although some data may be lost or missing as a result of this focus, I believe given the literature and the persistence of these three elements across virtually all definitions, that this use is appropriate. There may be some overlap, as is expected, between these factors and those within the rhetorical situation being examined. However, we will use the guidelines from Bitzer, Vatz, and Consigny to identify which factors are rhetorical and which are not. The three elements of context in use here are:

*Environmental* – will be defined as any physical aspects influencing the relationship and/or interaction between the human being and the AI. This includes the physical location where the interaction occurs and any hardware or software infrastructure involved in the interaction as well, much like how the Schilit et al. study defines context as consisting of (among other things) “lighting, noise level, network connectivity, communication costs, communication bandwidth” (1994, p. 85).

Specific environmental factors that constrain the rhetorical components of a situation are separated from, but not exclusive of, those simply in the surrounding environment. For example, the ambient environment within a video game is not considered rhetorical but may contribute to the movements of the user or the AI within the video game. In other words, to borrow from Schilit et al.’s definition, environmental contextual elements include those components of context that you can “see, hear, and touch” (1994, p. 85) and, in some situations, taste and smell. It also consists of measurable elements reliant upon those components, such as time, which can be determined in part by what you can see (the sun
setting, for example). Specific elements of the environment that influence the interaction between the AI and the user are considered a part of the rhetorical situation when they constitute part of the constraints on the interaction.

*Social* – defined as any socially accepted cues, norms, standards, or forms of interaction engaged in between the AI and the human that can be codified. In other words, the norms of social engagement that accompany a given, recognizable social situation – as Schmidt defines it, “the implicitly introduced contextual information, such as gestures, body language, and voice. Another example is redundancy between body language (e.g. nodding) and spoken language (e.g. the word "yes")” (2000, p. 191). Each of these is, importantly, measurable. For example, those social components that the audience forms an opinion on in the development of the ethos of the rhetor, and that influence his/her/their decision to act, would constitute constraints and be considered a part of the rhetorical situation whereas those elements of the interaction that are social but without rhetorical intent, such as the distance one stands from another individual when speaking, are contextual.

*Historical* – defined as any prior relationship between the AI and the human that is non-rhetorical in nature (for example, knowing that another person has blue eyes and not brown), historical knowledge of a given location or interaction (for example, knowing that the weather in Seattle tends to be wet, the arrangement of furniture in a room, or the browser history on a computer), and any changes over time that may occur between the AI and the human (for example, prior negative experience with a similar device). To some degree, this will resemble the “conceptual context” defined by participants in the second workshop.
described by Maskery et al. (1992). Evidence of a historical context will include references such as those to prior experience with similar devices or software (for example, related video games), to any expectations that the user had of the AI, to prior knowledge of how AI, or computers in general, operate, or to the AI “remembering” an action or physical location of an item or person. When these elements become rhetorical factors will be evident when the participant uses the reference to justify his or her action or opinion of the AI.

In summary, in attempting to separate the elements of a rhetorical situation and context and, consequently, identify the differences between rhetorical and contextual intelligence, this study utilizes two three-component definitions of a rhetorical situation and context. Elements of the rhetorical situation include audience, exigence, and constraints. Elements of context include environmental, social, and historical factors. Throughout the remainder of this dissertation, these operational definitions will be used. In order to show how the differences between context and rhetorical situations manifest themselves in a user’s assessment of artificial intelligence, this dissertation will discuss the results of an experiment wherein individuals were asked to interact with three different forms of AI and report back on their interaction through structured interviews. The interviews are specifically designed to answer the research questions initially posed in Chapter 1.

To review, the research questions this dissertation is attempting to answer are as follows:

**RQ 1:** What expectations and preconceived notions do users have of AI?
**RQ 2a:** Do users rely on historical, social, and environmental contextual factors in explaining or making their attributions of intelligence to artificial systems?

**RQ2b:** If so, how?

**RQ3a:** Do users rely on information about audience, exigence, or constraint in explaining or making their attributions of intelligence to artificial systems?

**RQ3b:** If so, how?

**RQ4:** How do users balance and/or associate contextual factors (RQ2a) and rhetorical factors (RQ3a) when explaining or making attributions of intelligence to artificial systems?

**Meet the AI**

The AI being tested consisted of a computer game, an online customer service agent, and a robot. These three were chosen to test AI in a variety of forms. Furthermore, each AI represents a different context and purpose for the human-AI interaction, with differing emphases on the contextual elements (the game ad focusing on the social, for example). Each offers a different form of interaction with the AI (“mediation,” or the type of technical interface that must be used in order to interact with the AI), something that may impact the perceived intelligence of the AI given the importance of physical action on perceptions of intelligence as discussed in Chapter 3. Finally, each of the forms of AI also attempts to serve
a different assumed purpose, leading to different expectations of intelligence as well. To compare the three forms of AI:

<table>
<thead>
<tr>
<th>Contextual Emphasis</th>
<th>Computer Game</th>
<th>Online Service Agent</th>
<th>Robot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediation</td>
<td>Mediated (controller)</td>
<td>Mediated (keyboard)</td>
<td>Non-mediated</td>
</tr>
<tr>
<td>Assumed Purpose</td>
<td>Enjoyment</td>
<td>Assistance</td>
<td>Assistance</td>
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I chose each of these three options for two main reasons. First, that the product was readily available to the average user – in other words, it was feasible that the participants could actually own one of these products in their own home and, therefore, may have some familiarity with the AI (or related AI) already. Second, I expected that the judgments about the AI for these three forms would be different because they would require the participants to engage in very different structured tasks, something the literature tells us is necessary for evaluating context and user perception in an operationalized form (see Crowley et al., 2002; Maskery and Meads, 1992; Maskery et al., 1992). The three products chosen are as follows.

**Computer Game.** Elder Scrolls IV: Oblivion for the XBOX 360 platform was chosen because the game developers and advertisers promoted the game as possessing an advanced form of AI for the NPCs (see Stein n.d.; Onyett, 2006). Set in the fictional realm of Morrowind, players develop characters they create throughout many hours of game play. Players select a race and class, including standard generic offerings such as mage and fighter,
and traverse the diverse and varied landscape of Morrowind, interacting with other non-player characters in the game in an attempt to, in all its clichés, save the world.

Figure 8: Screenshot from Elder Scrolls IV Oblivion (Amazon, n.d.)

What sets the Elder Scrolls IV game apart from many of its competitors, and why it was chosen for this study, is the advanced form of AI that’s used for the NPCs. The game utilizes something that its developers, Bethesda Softworks, call “Radiant AI.” Producer Gavin Garter described in an interview how the new technology provided the NPCs in the game with a level of autonomy not previously seen in computer games of this scale or caliber:

NPCs will engage in a whole host of activities. They converse with each other with dynamically generated conversations. You'll see them practicing their skills all over the world… Other NPCs will go shopping, till their fields, pray
at churches and shrines, hunt deer, drink in the pubs, and plenty more…just the other day I was fighting the "boss" of a particular dungeon -- a nasty orc warrior in heavy armor. As he was tearing me to pieces, he shouted degrading epithets at me. "I'll pick my teeth with your spine, puny elf!" He proved the victor, and in the moments before the load menu came up, he knelt to loot my corpse while muttering with disdain, "Annoying creature." I love it when small random events like that add up into something that fits the character so perfectly. (Onyett, 2006)

I expected players to perceive the AI as being rhetorical for the same reasons I identified the NPC in the Skyrim ad as being so: the NPCs engage the player in physical and, in some cases, audible ways to convince the player to attack, defend, assist, etc. the NPC. This specific game was chosen because the NPCs were reported as having more autonomy than within competing games, something that the ads in Chapter 3 indicated was an important component in a user/player recognizing the intelligence of the AI.

**Automated Customer Service Agent.** Automated customer service agents are AI entities that answer questions from customers or visitors accessing commercial online and/or physical spaces. There are numerous examples of automated customer service agents currently in use today. Several international companies produce commercially available software packages for installing customer service agents on a company’s website. For
example, VirtuOz (2008), one such company, places its agents in a chat window and can boast of a diverse repertoire of clients including eBay, AOL-Neuf, PayPal, L’Oréal, and more. Customers who choose to interact with the agent can enter any question or comment into the text box, click on the Submit button, and retrieve a response with either the answer to the question or a link to a page on the host website that contains the answer. For this study, the online customer service agent tested was Anna, the online customer service agent for Ikea.com.

Figure 9: Screenshot of chat window for Anna

Ikea promotes Anna as being a customer service agent capable of assisting customers in locating products and receiving answers to commonly asked questions. When a question is posed to Anna, not only can she answer in the chat window, but she can also redirect the webpage from the one the customer is currently viewing behind the chat window to the page with the product(s) or information she believes meets the needs of the user. Her knowledge
base is limited to only IKEA products, services, and information. I chose Anna, then, because she acts in a distinctly social way to assist users in choosing a product to purchase; in other words her purpose is distinctly a rhetorical one.

**Robot.** Since the goal of this study was to test different forms of AI, it was important to incorporate an AI that required a physical interaction with the human being. To fulfill this role with a product that the average consumer would have access to, I selected the iRobot Roomba model 440, an automated vacuum cleaner.

![iRobot Roomba Model 440](image)

**Figure 10: iRobot Model 440 (iRobot, n.d.)**

The company behind the iRobot Roomba, iRobot, was founded in 1990 by individuals from the Massachusetts Institute of Technology (MIT) with the intent of producing and developing practical robots (iRobot, 2012). Although originally focused solely
on products for military use, the company launched the first automated floor vacuuming system in 2002 and since then has produced numerous other devices for home use (iRobot, 2012). The iRobot uses sensor technology to traverse a given area. It moves in circles or linearly to navigate its environment. The front of the robot has a sensitive touch sensor. When it encounters an object or wall in its path, it turns around and attempts to move in another direction. Users can install sensors throughout the environment to create artificial “walls” that the iRobot will treat in the same way as it does an actual, physical wall. Once the iRobot completes the vacuuming of a room, in other words once it determines that it has fully navigated the space available to it, or it runs out of power, the device will signal through a series of electronic beeps to the user that its task is done. More advanced versions of the device will at this point return to the docking station to begin the recharging process, whereas the more basic versions will simply audibly signal its completion so that the user may empty the vacuum of what it has collected and plug it in to be recharged. The iRobot, being the least anthropomorphic of all of the AI tested, would also pose an interesting and informative opportunity to see what importance social interactions and human-like qualities (both physical and verbal/textual) would truly have on participants’ perceptions of the intelligence of the AI.

**Participant Interaction**

Ultimately, then, the objective of this study was to understand how individuals with varying degrees of technical expertise express their opinion of the intelligence of these three
forms of AI using contextual and/or rhetorical references. Specifically, individuals were asked to discuss in interviews their opinions and judgments of computer game AI, online automated customer service agents, and robotics. I then analyzed the statements made by participants, looking for specific attributions of the source or focus of the AI’s presumed intelligence. I attempted to determine whether participants perceived their interactions with the AI as rhetorical and, consequently, whether they believed the AI possessed rhetorical intelligence, contextual intelligence, or both.

Participants were solicited from a convenience and purposeful sample on campus. In an attempt to obtain a sample representative of the average users of commercially available AI products, participants with varying levels of technical expertise were solicited. I expected more participants with lower levels of technical expertise would be identified given the makeup of the standard users of the products tested. A total of twelve participants were identified. All participants were asked to complete a screening questionnaire to ascertain their level of technical expertise (see Appendix A). Two of the individuals in the participant pool as a result of this questionnaire were deemed to be “expert users,” having more self-identified technical expertise and completed more computer science coursework than other participants.

Participants were randomly assigned to a testing order for the three different forms of AI being tested. This not only allowed for a change in the order of influence, so that universal patterns which appear in the data can be discussed independently of the order of exposure, but it also allowed for multiple participants to test simultaneously since only one
form of the AI was available at a given time. All participants were randomly assigned to one of six testing orders and assigned a number. This way, participants were identified by testing order and number (e.g. Participant B2), not by any identifiable information. They were then asked questions about the different forms of AI (see Table 3).

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<thead>
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<th>Table 3: User Testing Order</th>
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<td><strong>Group A</strong></td>
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<td><strong>Group D</strong></td>
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<td><strong>Group E</strong></td>
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<td><strong>Group F</strong></td>
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I took an approach to the structure of the experiment almost identical to the one used by Bartnek et al. (2009) in their study of whether a robot’s design influenced its animacy and perceived intelligence. In the Bartnek et al. study, participants interacted with the AI and then filled out a questionnaire about their interaction. Since the primary concern was how the participants talked about their interaction with the AI and their perceptions of the interaction and the AI, actual observational data was not needed. Thus, participants in this study were instructed to complete one of three different tasks: to play a video game for one hour, interacting with as many of the other characters in the game as possible, to vacuum a floor that had been littered with confetti, and to identify a product they wished to purchase on the Ikea website using Anna (an automated customer service agent) to assist them. Participants were instructed to complete each task within a one-hour timeframe in the Human Factors
laboratory in the Communication department on campus. After completing the task (which users could self-identify as ending prior to the one hour time mark in all cases but the video game), users then participated in a short, semi-structured interview that was guided by a set of questions (see Appendix B: Interview Questions) but not restricted to those questions. This interview structure allowed participants to discuss qualities of their interaction with the AI (rhetorical and/or contextual) freely, but also allowed that when certain statements were made that were of direct relevance to the study (such as specifically attributing certain rhetorical qualities to the AI), the participant could be asked to expand on his or her statement.

Once agreeing to participate, study participants scheduled times to meet with me. While some participants tested all AI in the same day, others completed their interactions over multiple days. A related study by Lee et al. (2010) suggests that time between interactions has no effect on user perception of AI interactions. Not all participants were able to interact with all three forms of AI; since the focus of this analysis, however, is on individual assessment and report of a single interaction, this was not deemed detrimental to the study.

Once participants arrived, they were brought to one of two rooms where one of the forms of AI was waiting to be tested. Participants were given the demographic and screening questionnaire (see Appendix A) before their first interaction. They were then told what their task was to complete and told of their one-hour timeframe. Although I was available for
questions about the task at hand, I instructed the participants that I could not answer questions about the actual product they were testing.

To review, users were asked to complete specific tasks with each of these forms of AI. For the computer game, participants were asked to play through the game for one hour. They were asked to obtain quests and assistance from as many of the NPCs within the game as possible. For the online customer service agent, participants were asked to visit the Ikea website and pretend that they had $50 to spend at that site. They were instructed to utilize the automated customer service agent to obtain assistance in deciding on what they would spend the $50 on. For the robot, users entered a room with confetti all over the floor. Users were then tasked to clean up the confetti with the automated vacuum cleaner. When the room was clean, their task was complete.

After approximately one hour (or less, depending on the test), participants were interviewed about their interactions with and opinions of the AI. The interviews were semi-structured, following a set of questions laid out in advance (see Appendix B) and took approximately ten minutes each. The goal of such interviews was to explore answers to the research questions of this dissertation. The first ten questions were the same for each of the AI, with an eleventh question varying across the AI, and a final, wrap-up question for individuals who were able to test all three devices. The first two questions attempted to gather an overall impression of the AI by the participant, with the goal of answering RQ2a and RQ3a, and to some degree 2b and 3b as well. Questions 3-5 attempted to answer RQs 2b and 3b, teasing out more specifics as to the individual’s answers to the initial, broad
impression-based questions. Questions 9 and 10 attempted to answer RQ1 and questions 6-8, the wrap-up questions, and the AI-specific questions were all intended to answer RQ4. If, in the course of answering these questions, a participant mentioned something noteworthy (for example, they outwardly stated something as being of specific rhetorical significance), I would ask follow-up questions to encourage the participant to elaborate on his or her statement (being careful to not ask any leading questions in the process).

Once the interviews were completed, I coded the transcripts utilizing an inductive coding process in which patterns of attribution, references to rhetorical components, and identifiers of the two forms of intelligence were identified through linguistic features. I coded for the different elements of the rhetorical situation – “audience,” “constraint,” and “exigence” – as well as for the different elements of context – “environmental,” “social,” and “historical.” For a detailed explanation of each of these terms, see the prior section. I also looked for direct judgments as to the AI’s intelligence (“yes, this is intelligent” or “no, this is not intelligent”) and compared this to a coding of the justification to see when and why expectations were or were not met.

Questions 6-8 asked the participant to classify the intelligence of the AI in several different ways (on a sliding scale or in comparison to other intelligent or non-intelligent entities) and to justify their classification. I looked in these cases at how and why they argued for or against the AI’s intelligence. In cases where intelligence was assumed, I looked for the coded reasons (rhetorical vs. contextual) that might justify this assumption. In situations where intelligence was denied, I looked for coded reasons why (expectation of rhetorical or
contextual intelligence compared with exhibitions of rhetorical or contextual intelligence). I then looked for how these judgments and attributions resulted from expectations they had of the rhetorical capabilities of the AI and whether they mentioned the different rhetorical and/or contextual components directly or indirectly. For example, I looked at what role they expected the AI to fill, whether that role was rhetorical in nature, and whether the AI was able to successfully fulfill that role or not. Ultimately, I was attempting to discern whether the participants were knowingly or unknowingly responding to the rhetorical and/or contextual intelligence of the AI and whether they expected the AI to possess either or both. I also was attempting to reiterate the findings from the rhetorical analysis of the advertisements, confirming in another form that the interaction between the human and the AI constituted a rhetorical situation.

In sum, the participants answered a series of questions whose purposes were to answer the research questions of this dissertation. They interacted with three different forms of AI and reported back their experience with and impressions of that AI, which I then coded looking specifically for when the participants referenced environmental, social, or historical contexts and when they delved a little deeper into the rhetorical exigence and constraints and their or the AI’s role as audience.
Chapter 5

Interview Data Analysis

The results of the interviews described in the previous chapter revealed findings consistent with the extrapolations made in Chapter 3, the analysis of advertisements. Before I begin to discuss these findings, however, let me first provide a clear picture of the participants.

The individuals participating in these interviews had enough experience with computers to justify the assumption that they may hold some expectations about artificially intelligent devices they would be asked to interact with. Specifically, two of the undergraduate participants had taken Computer Science or Programming courses at the high school or introductory college level. Incidentally, neither of these individuals reported to be “Highly Proficient” with computers. All participants reported that they considered themselves “Somewhat proficient” with computers or greater (N=11), with over half considering themselves “Moderately proficient” or greater, and two individuals reporting to be “Highly Proficient.”
The majority of the participants (N=10, approximately 90%) were freshmen or sophomores from an ENG 101 course at NC State University. The students were compensated for participation with extra credit in their course. The outlying participant was a graduate student in Computer Science who responded to a request for participants from the AI-focused research group he was a member of. Of the participants, 63.6% (N=7) were male, and the undergraduate majors represented were diverse. Given the class standing of many of the participants, unsurprisingly approximately 45% of them (N=5) had not declared a major. Of those remaining, two were Education majors, two were Political Science majors, and one was a Biology major. None were computer science majors or reported taking higher-level computer science classes in high school and therefore were assumed to have had limited exposure to advanced forms of AI.

The questions posed to these participants were designed to investigate one or more of the research questions. The first three interview questions, along with questions 9 and 10 (see

![Figure 11: Self-reported computer proficiency level of participants.](chart)
Appendix B for full listing of questions), probed the user’s impressions of the three forms of AI on a broad, generalized level. The answers participants gave provided insight into the expectations that users held of the AI specifically, something that would then pop up again in later questions as justifications for their answers.

The remaining questions were designed to probe for more specific and measurable impressions of the AI (see Table 4). Although users felt that the AIs were intelligent, participants universally felt that the AIs were less intelligent than a human being (with one exception). This disconnect between being deemed “intelligent” and possessing human-level intelligence is an important distinction, and one that points to the idea that intelligence comes in many forms (rhetorical and contextual and presumably others). It also supports the notion, when paired with participant/user satisfaction, that humans desire varying levels of intelligence in their AI-enabled device and that a lesser form of intelligence can be acceptable given the circumstances of the human-AI interaction.

Not all participants were able to complete all three interviews. However, due to the varied schedule for each participant, this meant that the total number of participants for each AI did not drop significantly from one AI to the next. Eight participants were able to interact with the video game, nine with the automated customer service agent, and ten with the automated vacuum cleaner.

Ultimately, in all cases over 50% of participants declared each of the AI intelligent. The differences between the three forms of AI in terms of intelligence appeared to be based upon a combination of the satisfaction of user expectations of the AI and the complexity of
the interaction between the user and the AI. Importantly, when asked a more specific question that forced the user to analyze the AI in comparison with something that they already know and feel is intelligent (a human being), rather than their expectations for the AI, users were more likely to rely on contextual attributes to justify the intelligence of the AI and rhetorical capacity to justify inferior (when compared to a human) or lack of intelligence. Participants, however, relied exclusively on contextual claims and attributions when asked to describe or analyze their experience with the iRobot (see Table 4 for a comparison of participant answers by question and Table 5 for a comparison of the coded, rhetorical and/or contextual, justifications per question. Note that some answers may have been coded as having made reference to both rhetorical and contextual factors or none at all in the second table).

<table>
<thead>
<tr>
<th>Table 4: Total answer counts without Rhetorical/Contextual Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Q5 - AI</strong></td>
</tr>
<tr>
<td>Q5 - AI</td>
</tr>
<tr>
<td>Q5 - Depends</td>
</tr>
<tr>
<td>Q5 - Human</td>
</tr>
<tr>
<td>Q6 - Intelligent</td>
</tr>
<tr>
<td>Q6 - Not Intelligent</td>
</tr>
<tr>
<td>Q7 - Same Intelligence</td>
</tr>
<tr>
<td>Q7 - Less Intelligent</td>
</tr>
<tr>
<td>Q7 - Uncertain</td>
</tr>
<tr>
<td>Q8 - Greater than 5</td>
</tr>
<tr>
<td>Q8 - Less than 5</td>
</tr>
</tbody>
</table>
The following pages, then, describe the interactions that these participants had with each of the different forms of AI. I have arranged these sections to first report on the results for each form of AI individually, followed by a comparison of the different forms of AI, including the results of the final interview question, which asked participants who were able to complete all three interviews to compare the different forms of AI.

**Automated Customer Service Agent**

**Description of Interaction.** All participants completed this task – utilizing the automated customer service agent, Anna, on the Ikea website, to locate products – in less than the one hour allotted. They reported that (at first) they typed into the chat box complete sentences of what they were looking for, and then received a written response from Anna.

### Table 5: Comparison of Coded Justifications for Answers for all AI

<table>
<thead>
<tr>
<th></th>
<th>Contextual</th>
<th>Rhetorical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anna</td>
<td>NPCs</td>
</tr>
<tr>
<td>Q5 - AI</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Q5 - Depends</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Q5 - Human</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>Q6 - Intelligent</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Q6 - Not Intelligent</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>6</strong></td>
</tr>
<tr>
<td>Q7 – Same Intelligence</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Q7 - Less Intelligent</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Q7 - Uncertain</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>Q8 - Greater than 5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Q8 - Less than 5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>
Examples of the sentences they typed included, “What’s a good product I could use a $50 gift card for?”, “I would like a lamp.”, and “What’s on sale?” Note how in at least one of these examples, the inquiry was specifically suggestive of a desire for a rhetorical interaction – a “good” product implies an exigence for Anna to do some analysis of the products Ikea offers before supplying suggestions to the user. The participants reported that the responses Anna gave included a clarification of the sentence posed and/or a link or list of links to products or pages on the website that she determined would be of assistance.

Many of the participants reported that Anna’s responses often were not relevant or useful. Participants described how she provided a link to a product which the participant would then have to click on and navigate to himself or herself, how she would not understand what they were typing and need to ask for clarification, and/or how a “couple times [she] took me to an error page, [but] eventually it did work.” Several participants also reported that they realized after interacting with Anna for the first few minutes that she was looking specifically for keywords in their sentences, and so the participants began typing in keywords (or, as one participant referred to them as, “product names”) instead of complete sentences or phrases.

**Expectations of Intelligence.** All but one of the nine total participants for Anna (N=8, 88.8%) indicated that they believed Anna fulfilled a service-oriented, rhetorically based role, much as the analysis of smartphones suggested they would in Chapter 3. Case-in-point, five participants (56%) utilized the word “helpful” when describing their experience with the agent. They reported desiring detailed answers to questions, further suggesting that
they wanted Anna to go beyond simply providing a link to a website. Indeed, several
participants referenced Anna’s ability to make finding a product “easier,” indicating that
Anna must know something about her audience in order to be truly “helpful.”

Seven participants (81.8%) referenced rhetorical elements (specifically audience)
when asked Anna’s purpose. All participants (N=9) referenced the environmental context of
the website, making direct reference to Anna’s ability to locate an item on the website that
meets a specific set of attributes (red couch, for example). Put another way, participants
referenced Anna’s speedy ability to navigate a thorough site map. Given this expected
purpose, five participants (56%) reported that they did not enjoy the experience of interacting
with Anna, three (33%) declared it an enjoyable experience, and one participant was unsure
of how to classify it (11%). Of the individuals who did enjoy the experience, all three
referenced only contextual factors – two environmental (making direct reference to Anna’s
assistance when it comes to navigation, how she “helped me look” or “I didn’t have to do as
much; don’t have to navigate”) and one historical (referring to Anna being more helpful than
other websites). Their enjoyment seemed to be directly tied to whether or not Anna met the
expectations set for her. This proves important because over half of participants (N=5,
56.4%) who felt negatively about their experience with Anna believed Anna to be
unintelligent.

Of those individuals who did not enjoy the experience, the participants made
reference to an unmet exigence and thus implied rhetorical expectations. For example, one
participant indicated that Anna, “did not give me the response I was looking for, [she] gave
generic responses.” Another participant stated that, “she wasn’t detailed enough. [I] thought about typing in rude comments [to see what she’d do].” These unmet expectations indicated that participants anticipated a rhetorical situation to be present and an exigence to be met, but when Anna failed to deliver, they deemed the experience unenjoyable, as is indicated by their judgment of Anna’s intelligence.

**Judgments on Intelligence.** When users were asked if they would prefer Anna to a human being, the majority of participants (N=6, 66.6%) stated they would prefer a human being. When asked why, these individuals relied more on rhetorical claims than contextual (see Figure 12). Conversely, the individuals who preferred Anna to a human being justified their reasoning using only contextual justifications. In each of the cases where users preferred a human, the participants indirectly claimed that Anna’s inability to react rhetorically limited her ability to satisfactorily answer questions posed to her. One participant, for example, argued that unlike Anna, a human “could actually personally recommend products.” The incidence of rhetorical justifications for Anna’s lack of intelligence appeared more dominantly in answers to questions such as this, where Anna is placed into contrast with human beings, than when participants evaluated Anna individually.
Another participant who preferred a human being to AI made reference to both contextual and rhetorical intelligence in a human being as opposed to AI: “Over time, interactions with others, they get a generalization of what customer is asking for.” This response makes direct reference to the ability of a human to take historical contextual information and use it rhetorically to offer suggestions to the human user based upon the human’s needs, expectations, and desires (in other words, within certain constraints).

Both of the individuals who preferred the AI to a human being made direct reference to desiring a tool rather than a rhetorical interaction with Anna. For example, one individual stated that, “automated would be faster,” and the other made a similar remark, that a “human would take time - that one is fast and easier.” Both, then, made reference to the AI’s presumed ability to recognize contextual information faster than a human being. Interestingly, one of the participants also stated that, “I don't like other people to shop with me.” This would suggest that for some users, they actually prefer to utilize something distinctly nonhuman – a finding similar to that found in Chapter 3 in the analysis of the
iRobot ad. In certain situations, human beings actually prefer their assistant to not possess rhetorical intelligence.

Five participants (54%) declared Anna to be intelligent. When asked to explain their classification of Anna’s intelligence, many participants who declared her unintelligent referred to Anna’s inability to truly replicate the human experience. One participant, specifically, stated that “…she's a computer, intelligence is used more for people… humans have personal experiences.” Another participant clarified their positive answer with the stipulation that, “then again, she's not a human.” A third participant argued that Anna is able to provide assistance in locating products because, “it's just programmed to do that… doesn't really have a brain.” As shown in Figure 13 (below), participants relied more on contextual justifications in their designation of Anna’s intelligence regardless of their positive or negative decision on the matter.

![Figure 13: Contextual versus rhetorical justifications for Anna’s intelligence](image-url)
Participants who felt that Anna was intelligent referenced her ability in an environmental context to locate products quickly, which they claimed justified their classification. All participants who answered “yes” to Anna’s purported intelligence wavered when asked to justify their classification. Some used hedging terminology such as “to a certain extent” and “only to a degree.” All of these participants justified Anna’s contextual intelligence in their responses to questions, but not her rhetorical intelligence. In other words, their definition of “intelligence” conflated rhetorical and contextual intelligence, which explains their answer in the affirmative. For example, one participant stated that Anna was intelligent “to a certain extent within the scope of the Ikea website. She knew some things - shorter way to find things.” Another participant discussed how Anna could help him find products, but that “she only knew that kind of stuff.” In both of these cases, the participants were unable to separate Anna from the digital context within which she is found and that her assistance, in a rhetorical manner, was reliant upon a rigidly defined and bound context – that of the website. In turn, their assessment of her intelligence was deemed positive only because she exists within a predefined, structured environment. This explains why, when asked, all but one participant (N=8, 88.9%), who was uncertain, classified Anna as being less intelligent than a human being. By considering Anna outside of the website, and in comparison to a human being who (we assume) is able to act independently and outside of a single context, participants were able to deem her easily as being less intelligent than a human. Although they used more contextual arguments than rhetorical to do so, the differentiation between the two was not significant (see Figure 14).
Figure 14: Contextual versus rhetorical justifications for Anna’s intelligence compared to humans

The answer to why this may be the case lies in participants’ answers to the most specific of all the intelligence classification questions. When asked to rank Anna’s intelligence, the majority of participants (N=5, 55.5%) claimed that Anna’s intelligence fell somewhere in the range of 1-5. When asked to justify this ranking, almost all pointed to her limited ability in responding to contextually-based questions. The sole participant out of this group who made reference to rhetorical ability did so in a negative manner. In other words, the entirety of this group confirmed Anna’s ability to perform actions requiring contextual intelligence, thus placing her above the intelligence of a rock, but felt that her inability to do anything else prohibited her from approaching the intelligence of a human being. Interestingly, one of the individuals who declared Anna to be intelligent classified her intelligence as only a 3, which was on par with the individuals who declared Anna unintelligent.
Figure 15: Contextual versus rhetorical justifications for ranking of Anna’s intelligence

Of those individuals who ranked Anna’s intelligence above a 5, all but one mentioned both Anna’s rhetorical and contextual abilities (see Figure 15). However, unlike those individuals who ranked Anna at less than 5, all but one of these participants brought up Anna’s limited rhetorical abilities— all rhetorical references here were not to Anna’s rhetorical aptitude but, interestingly, her lack thereof. In other words, though she was ranked at higher than a 5, they hedged their rankings by clarifying what she was capable of contextually but not rhetorically. One participant, for example, stated: “She’s just past the half way point. She has the intelligence to get there, but she doesn’t have the further tools or details or in-depth answering to go further.” Another participant stated that Anna was able to, “successfully point [them] in the direction that [they] wanted to go.” Anna’s ability to provide a link to a specific point on a page points to her contextual intelligence; however it does not decidedly suggest rhetorical intelligence as we do not know exactly what the question was that the participant posed. If the question was indeed rhetorical in nature, then this might be indicative of her rhetorical intelligence. If, however, the question was
something such as “show me what red couches you sell,” then supplying a link to the red couch inventory would not be an indicator of rhetorical intelligence as there would be no rhetorical intent on the part of Anna.

The analysis from Chapter 3 concluded that AI would need to perform certain actions in order to indicate their rhetorical intelligence: (a) making and sharing judgment calls, (b) being attuned or focused on the needs of the user over other contextual pieces of information, (c) making it clear that the AI is the one making decisions, and (d) responding to an exigence both physically and verbally or textually. Participants, in their description of what they expected Anna to do, specifically mentioned (b) and indirectly mentioned (a) and (d). Regardless, Anna, according to participants, was unable to perform any of these actions. As one participant stated, “You just type in a word and it finds everything that has to do with that word.” This would indicate that Anna is incapable of judgment calls and cannot make decisions based upon the questions posed independently; it simply connects the user with pages on the website that contain key words from the individual’s query. Furthermore, two participants directly made reference to how Anna would be “more helpful if I'd known what I wanted, then it would've been more helpful.” This statement suggests two very important aspects of Anna. First, that the user’s expectations (or lack thereof) of Anna AND of their own purpose for interacting with the AI were crucial in their analysis and understanding of Anna’s capabilities. Having an expected outcome directly affected their perceptions of the AI and their interactions with it. Second, that Anna’s inability also indicates a big difference between Anna and a human customer service agent, and illustrates how Anna is incapable of
putting the needs of the user over contextual information. A human customer service agent would be able to glean from individual queries what a human being might be interested in and make suggestions and recommendations based upon what is being asked; Anna, it seems, cannot do the same.

**Summary.** In conclusion, the results of the interviews with participants who interacted with an automated customer service agent suggest that when a user expected or desired Anna to respond rhetorically and she failed to do so, the user would deem Anna unintelligent. On the other hand, individuals who only desired contextual responses such as directions or basic product information felt that Anna met their needs and thus deemed her intelligent. Universally, however, participants felt that Anna was less intelligent than a human being specifically because her intelligence was constrained to her contextual knowledge of the Ikea website.

**Video Game**

**Description of Interaction.** Given the nature of the interaction between the player and the *Elder Scrolls IV: Oblivion* video game, unsurprisingly all participants interacted with the game for the full one hour allotted; all participants had to be reminded when the hour had ended. Half of the eight total participants (N=4, 50%) had prior experience playing this *Oblivion* or a similar game, and all participants had at least “a little” exposure to video games. *Oblivion* begins with the player having been arrested, and then, with the help of the Emperor, escaping from prison and being tasked with saving the kingdom upon the Emperor’s death.
The trip from prison to the outside world serves as a tutorial for the player, instructing him or her on how to interact with other characters, choose a weapon or spell, attack or defend, and interact with the physical environment (open a chest or door, pick up something on the ground, etc.). Upon exiting the escape route, the player finds himself or herself within a small town, where he or she can interact with every resident, from the baker to a guardsman, or wander outside of town to explore the massive in-game world. The Emperor tasks the player with seeking out a specific individual to aid them on their path; however the player is free to explore in-game at their own leisure. All participants were able to complete the tutorial portion of the game in addition to having time to explore the world on their own. Hence, by the time the participants entered the part of the game where they were free to interact with a plethora of NPCs, they knew enough of the game mechanics to remove any limitation the game interface might have had on their ability to interact with the NPCs.

One participant described the experience with the NPCs within the game as such: “You had to go talk to them separately. It gave you options to ask you about. All gave different opinions and feelings. They’d tell you their opinion on, like, the best place to go to get your armor.” Another participant further explained that, “If they were your friend you could ask them more. Some of them you could bribe them. One woman I couldn't get away from until I'd bribed her.” Both of these explanations imply that the interaction between the player and the NPC should be a rhetorical one – the game mechanics are set up so that a player could develop a favorable or unfavorable opinion of every character within the game world; in a sense each NPC will make its own rhetorical appeals to establish its character’s
role and relationship to the player within the game world. Much like the Droid advertisement in Chapter 3, the NPCs in the first participant’s interaction are believed to be making a judgment call on the “best” place to obtain armor. The latter participant references a constraint on the interaction between the player and the NPC – the established relationship between the two within the game limits the conversation to only certain topics and forms of interaction.

**Expectations of Intelligence.** Interestingly, many participants (N=5, 63%) expected the NPCs within the game to fill a similar role to Anna – that of an assistant. However, unlike Anna, whose purpose would be to assist individuals in their own, independent tasks that users themselves determine, the assistance that participants felt the NPCs provided was that of helping the player figure out what to do next in the game, to move the storyline forward. In other words, players expected the NPCs to predict what player in-game goals would be and to offer adequate assistance in directing them to complete these goals. This comparison is mimicked in much the same way within the differences between the ads for the two forms of AI. For Anna/smart phones, the assistance comes from the AI fulfilling a submissive role to the user. For the video game, the assistance comes from the AI fulfilling a superior role to the user.

This conclusion is further reflected in the expectations participants claimed to have of the NPCs within the game. Although 50% of participants (N=4) reported having no prior experience with this or similar video games, half of these individuals stated they had played games from other genres on the same console. This would suggest that 75% of participants
(N=6) have some prior experience playing video games that contain NPCs. Therefore, it would be expected that the majority of participants would hold some expectations of the NPCs within the game.

All but one participant (N=7, 88%) made reference, in some cases directly, to the social expectations of the NPCs. Therefore, although more than half of participants felt that the NPCs fulfilled an assistive role, all of these individuals also expected the NPCs to engage them socially, an expectation they did not hold of Anna. For example, one player explained that the NPCs exist, “so you're not by yourself the entire time. Interacting with other characters helps you interact with the game. You're not wandering around in a cellar by yourself for hours - human beings are social. Helps you stay with it.” Another player stated that the NPCs will, “give you a hint about what's going on in the story, current events. [They fulfill a] social role, cause they say ‘hi’ but also more service because all about information.” These two statements point to the expectation of not only contextual, social intelligence (saying “hello,” for example, when greeted – most NPCs will acknowledge the player’s presence when his or her character enters within a predetermined area around the NPC, but the NPC does not necessarily always expect or desire an interaction with the player) but also to the rhetorical abilities of the NPCs. For a character to be social but not rhetorical, he or she would not have any rhetorical intent behind their actions. Instead, the NPCs, as the participants stated, assist the player by providing useful information. In other words, they meet an exigence created by the player to suggest what actions the player should take next (from where to go to arm himself or herself for the wild areas of the game environment to
suggestions on who to seek out next to help them on their task from the Emperor). Four players (50%) also expected the NPCs to possess environmental, contextual knowledge of the in-game world, which would follow given the expectation that the NPCs would be able to point players towards their next step. In other words, participants expected and perceived levels of both contextual and rhetorical intelligence on the part of the NPCs because the NPCs were able to respond to an exigence and act rhetorically. However, the NPCs are expected and able to do so because they exist within the highly controlled setting and script of a video game.

Judgements on Intelligence. Much like Anna, then, the expectations – both rhetorical and contextual – that players held for the NPCs seem to have influenced their perception of the NPCs intelligence. Of the six players (75%) who enjoyed interacting with the NPCs, four believed the NPCs to be intelligent. Of the remaining two, one believed emphatically that AI could not, under any circumstances, be considered intelligent. The other felt that the NPCs were not flexible enough, but they were still “convincing [in] what they tell you,” implying that although the participant did not declare the NPCs to be intelligent, he or she still attributed some degree of rhetorical ability to the NPCs. Ultimately, five participants (63%) argued that the NPCs within the game were intelligent. Like Anna and the iRobot, participants used predominately contextual evidence to justify this attribution. However, unlike Anna and the iRobot, they used slightly more rhetorical justifications for unintelligent attributions (see Figure 16).
Participants who felt the NPCs were intelligent relied in all but two cases exclusively on contextual justifications. They made no reference to the AI’s rhetorical ability or lack thereof, suggesting that for these individuals, contextual intelligence alone was enough to justify intelligence on the part of the NPCs. Given the expected rhetorical nature of the characters in the game, this suggests an interesting and dynamic relationship between rhetorical ability and recognition of intelligence. Those who did not make reference to the rhetorical ability of the AI made, across the board, direct reference to the social, contextual abilities of the NPCs to relay information about the environment and other individuals in the game upon asking. This would suggest the importance of social contextual abilities, something that very few of the participants (N=2, 22.2%) referenced in regards to Anna. Of the two individuals who did utilize rhetorical justifications when referencing the NPCs, these individuals specifically referred to the pathos of specific characters within the game as well as those characters’ relationships with the player.
Although a single engine controls all of the NPCs within the game, and each NPC originated from the same core programming logic, several participants found it difficult to judge all of the NPCs as a single group. Four participants (50%) stated that either “some” of the NPCs were intelligent or that only those NPCs they engaged with were unintelligent (leaving open the possibility that other NPCs could be intelligent). One participant, for example, argued that only the characters willing to talk with him were intelligent: “Yeah, a few of them. A couple of them I'd try to talk [to] and they'd say ‘no, go away’ - the characters willing to talk were more intelligent.” On the other hand, another participant stated that some of the NPCs were intelligent because of precisely the opposite reason – that their ability to dislike the player was indicative of intelligence: “I guess some of them were like ‘we're not friends.’” Thus, the attitudes that the NPCs expressed towards the players directly impacted players’ perceptions of intelligence.

Of the three individuals who claimed the NPCs were unintelligent, one held the belief that AI could not, unequivocally and fundamentally, be intelligent. This participant contended that none of the products tested were intelligent. The remaining two dissenting participants argued that, “It’s not like they were actually processing what I was saying, they had a set response,” and “They're not flexible. It's convincing what they tell you… [so it] doesn't bother me.” The flexibility that this individual mentions points to an important distinction that was made in Chapter 3 when it came to being able to define intelligence in AI, or more specifically part (c) of the requirements for AI to show their intelligence: making it clear that the AI is the one making decisions. The inability to be socially flexible may call
into question the intelligence of the AI because it is a direct indicator that the AI would not be the one making a decision. The social script (created by a human being) or human input would be required for the AI to be flexible in the case of the NPC, something that was a marker for some of the participants to declare it unintelligent. On the other hand, Anna, who was flexible and could act independently thanks to her abilities in natural language processing failed in successfully meeting user expectations despite this fact and was declared less intelligent than the NPCs, suggesting that AI independence may be not nearly as important as the ability to meet user expectations.

Case in point, the only instance throughout all the testing where a participant claimed the AI was not less intelligent than a human being was with the NPCs – one participant claimed that the NPCs held the “same” intelligence level as a human being, albeit this participant could only justify the response by claiming that they were “probably made by a human,” referencing neither contextual or rhetorical justifications. This individual would later rank the NPCs’ intelligence at a 7, thus implying an actual belief that the NPCs possessed a lower form of intelligence than human beings.

The remaining participants (N=7, 88%) all believed the NPCs to be less intelligent than a human being. Participants relied equally on contextual and rhetorical factors to define the AI’s intelligence in comparison to human beings (see Figure 17). Over 87% of participants (N=7) referenced the inability of the AI to act independently and thus rhetorically OR the ability for the AI to recognize elements within the game and only within the game. Participants clearly felt that some level of contextual recognition was indicative of
intelligence and that rhetorical intelligence was equally as important within the social aspect of the video game. Participants did recognize the nature and confines of a video game and the AI’s limited abilities outside of it, therefore ranking it as less intelligent than a human being.

![Figure 17: Contextual versus rhetorical justifications in comparing NPCs’ intelligence to humans](image)

Interestingly, the concept of independence permeated almost all justifications for participants’ ranking of the AI’s intelligence. All but two participants (N=8) used the concept of independent action in either their justification for classifying the AI as intelligent or their ranking of the intelligence. For example, one participant discussed how the NPCs had “a set response” to questions, while another described how, “they're not really able to reason; other things they're programmed to give a response to.” Similar discussions occurred within the assessments of Anna (though to a lesser degree and indirectly) and the iRobot. With Anna, participants were frustrated that she was unable to respond to them appropriately, which results (unknowingly to most users) from her coded independence. She doesn’t rely upon a predetermined set of Q&As, in other words, and isn’t restricted by only those questions and
answers within her database. Hence, Anna’s independence indirectly counted against her.

With the iRobot, its physical independence was deemed an important factor in its intelligence (as will be seen in the upcoming discussion) but naturally there was no discussion of its social independence.

To some participants the lack of independence for the NPCs did not seem to matter; the appearance of intelligence (both rhetorical and contextual) was seen as more important than actually possessing it. Case in point, the individual who provided the explanation above referencing the NPCs ability to reason assigned the AI an intelligence score of 7 on the scale of 1 to 10 (10 being human intelligence) and made indirect references to the AI’s ability to respond to an exigence when explaining the AI’s purpose. Another participant, who rated the NPCs as a “6 or 7,” justified this ranking by arguing, “they weren't dumb, they knew what was going on in the game, but that's all they knew.” This explanation makes reference to environmental contextual intelligence, but this participant’s explanation for the purpose of the AI (in short, they provide “hints” to the character to assist them) referenced the AI’s ability to respond rhetorically as well. In-game knowledge, then, of the reasons and motivations for player action was enough for participants to assign a perceived and limited degree of rhetorical intelligence to the AI. The limitation was sufficient for the AI to meet the expectations of the player within the game because they were able to respond to an exigence, even if that exigence could easily be foreseen due to the nature of the game, its narrative script, and the role of the player of said game.
This also explains the predominance of contextual references over rhetorical in the ranking of intelligence as well as answers to the preference question of human versus AI (see Figure 18). Participants recognized that the intelligence of the NPCs was limited to within the scope of the game. For some, that limitation did not matter; the actions that the NPCs took that were perceived as rhetorical were thereby attributed to the NPCs and their intelligence level was ranked higher than a 5. For others, the limitation was paramount in determining whether or not the NPC independently responded to an exigence. To these individuals, the NPCs simply acted according to a predetermined script and, therefore, were incapable of acting rhetorically and being intelligent.

![Figure 18: Contextual versus rhetorical justifications for ranking of NPCs intelligence](image)

This distinction resurfaces in the preference for the NPCs being controlled by the AI within the game versus other human beings. For those that preferred the human being (N=4, 50%), they universally relied upon a human’s rhetorical abilities versus the AI’s lack thereof to justify their answer. As one of participant described, “it seems like [the game] would be
more interactive; you could use your own personality to sway or do whatever you want with the actual human characters.” These participants, then, preferred a higher level of rhetorical intelligence than other participants due to their belief that having human players would increase the unpredictability of the game. As another participant pointed out, however – “it would make it a completely different game.”

These players, along with those who preferred the AI to the human, recognized that NPC flexibility and independence would change the nature and, importantly, the expectations of the player of the game. Players of a video game expect and desire their NPCs to be highly knowledgeable about the game, to direct them along the narrative of the game, and to be able to interact with them socially and physically in the game environment. The expectations, in other words, of the NPCs are more directly and specifically defined than those of Anna, where users may have no expectations of the outcome of the interaction but rather of the social and rhetorical path to get there.

Figure 19: Contextual versus rhetorical justifications for NPC versus human preference
Those that preferred the NPCs to human players (N=3, 38%, see Figure 19) did so because they felt the AI knew more contextually within the game than a human player could. Additionally, these players agreed with the one participant (12%) who argued that it depended on the ability for the human to play an assigned role, much like the actor in a play, to keep the game and plot moving forward in a predetermined direction. If the human could not “stick to the role, then the computer [would be more desirable].” As one of the other participants explained, the AI is “programmed to give you the answers you need. Humans could trick you or lie to you…” Ultimately, then, half of the participants (N=4) actually preferred the lack of autonomy on the part of the AI so that they could trust that the game would proceed along a predetermined, re-playable storyline. In other words, they actually preferred that their NPCs possess limited rhetorical intelligence, such that the NPCs would only be able to respond to player actions within a set of very rigid restrictions.

Returning to the analysis from Chapter 3, then, the NPCs met some, but not all, of the actions that the advertisements suggested they would need to perform to indicate their rhetorical intelligence. They did make and share judgment calls, as indicated through their preference and familiarity to the player. They were attuned and focused on the needs of the user, as indicated by their suggestions and guidance of the user’s actions. The fact that some players found it difficult to analyze the intelligence of the NPCs separately might suggest that the AI was making decisions. However, some players could not divorce the NPCs’ language from the script and story within the game, making it difficult to definitively state that the NPCs met this requirement. Finally, the NPCs seemed to respond to physical exigences
within the game, but it was not clear to players whether they were responding verbally to exigences or not, as again indicated by the difficulty participants felt with resolving the interplay between script, story, and character’s choice of language.

Hence, though the NPCs met most of the requirements set within Chapter 3 for rhetorical intelligence, it was clear from the participants that their expectations of the AI predominantly drove their analysis of it, much like with Anna. They expected the AI to be restricted in its abilities and its intelligence and when that was what they observed in the game, they accepted it. A similar thing occurs with the iRobot. Participants didn’t expect social intelligence from the iRobot but instead only a high degree of contextual intelligence. This explains why more participants identified both the iRobot and the NPCs as intelligent than with Anna (see Table 2).

**Summary.** Participants enjoyed playing *Oblivion* and, furthermore, enjoyed interacting with the NPCs – the virtual embodiment of the AI within the game. Participants expected the NPCs to be contextually intelligent, social beings that would assist them through directing the players’ actions and interactions within the game environment. When the NPCs satisfied these expectations, the majority of participants classified the NPCs as intelligent. Furthermore, many players resolved their determination of the NPCs’ individual (rather than collective) intelligence based upon each NPC’s actions and demeanor towards the player, suggesting that although the participants may not have directly attributed rhetorical intelligence to the NPCs, the NPCs themselves acted in rhetorical ways towards the
players within the context of the game. These actions, then, led to 63% of participants (N=5) to declare the NPCs as intelligent.

**Automated Vacuum Cleaner**

**Description of Interaction.** Much like their interactions with Anna, participants completed this task in less time than was allotted to them. Participants entered a small office (a little larger than a closet), wherein they found a desk, chair, and filing cabinet. On top of the desk was the iRobot in its original packaging, including the instructions and two virtual walls. A virtual wall is a device that a user can place on the floor that will draw a virtual line perpendicular to the device, preventing the iRobot from crossing said line. Interestingly, none of the participants reported referencing the directions and only two participants (one of them an ‘expert’ participant) indicated that they used the virtual walls to constrain the iRobot’s movements.

On the floor of the room, I had scattered confetti. This confetti tended to be closer to the desk, concentrated more on one half of the room than the other. Participants were instructed to use the iRobot to clean up the confetti on the floor. They were told that once they felt the floor had been cleaned and all the confetti removed, that the experiment would be concluded.

Most of the participants reported having a similar interaction with the iRobot. One of the participants summarized the experience as such: “I just set it down, turned it on, [and] pressed the power button. It started doing its robot thing.” Although all participants began
their interaction identically (taking the iRobot, placing it on the floor, and pressing the power button), once the participants began to observe the iRobot their actions began to differ. Only two participants (20%) left the iRobot alone to “do its robot thing.” The remaining participants modified the environment to constrain the movements of the iRobot (N=6, 60%) or physically picked up and moved the iRobot to the area of the room with the higher concentration of confetti (N=2, 20%). Of those that modified the environment, two utilized the virtual walls to direct the iRobot towards the confetti, one picked up and moved the chair to allow the iRobot to reach the confetti faster, one brushed the confetti in the direction of the iRobot’s path, and two put their foot or feet in front of the iRobot to force the device to adjust its trajectory. Whether this was the participants’ attempt to aid the iRobot in their task and indirectly helping it to be intelligent, signifying perhaps lower expectations of the iRobot, or a symptom of participants’ impatience in watching a vacuum cleaner is unclear.

**Expectations of Intelligence.** A total of seven participants (70%) had no prior experience with the iRobot, and of those that did, only one had actually engaged the iRobot beyond a simple demonstration of the device by another individual. Hence, nine out of ten participants had no experience actually interacting with the iRobot. As such, individual expectations for the iRobot were likely limited – many, for example, initially referenced the novelty of the device when asked to summarize their experience with it.

All participants were quick to identify the purpose of the iRobot as task-oriented, that of cleaning/vacuuming. Four participants (40%) used language indicative of their viewing the iRobot as a replacement to a human maid, referencing its “convenience” and ability to “help”
out its user. All participants indicated that they expected the device to be able to perform a repetitive task that would necessitate the recognition of one’s environment, suggesting their expectation of contextual intelligence in the iRobot. Not a single participant referenced an expectation that the iRobot possess rhetorical intelligence, and in fact several specifically stated as much. One participant, for example, said that the iRobot was “not going to be your buddy, but it'll clean.” Another participant referred to the device as, “more of a tool, little bit of a service.” In other words, there was a distinct lack of references to any rhetorical elements in the expectations individuals had of the iRobot, but there were clear expectations of contextual, specifically environmental, intelligence.

**Judgements on Intelligence.** Expectations seemed to be met when participants interacted with the iRobot, which would explain why not a single participant referenced rhetorical factors when classifying the iRobot as intelligent. It also explains why, of the six (60%) of participants who classified the iRobot as being intelligent, four referenced contextual factors when explaining their answer (see Figure 20). All participants were easily able to see how the iRobot was able to physically identify obstacles in its environment and avoid those obstacles when possible. The difference in ranking, then appeared to rely instead on whether recognition of one’s environment alone was enough to justify declaring the iRobot intelligent.
Figure 20: Contextual versus rhetorical justifications for ranking of the iRobot's intelligence

For all of the participants (N=4, 40%) who declared the iRobot unintelligent, simply possessing contextual intelligence was not enough for them to attribute intelligence to the device. For two of these individuals, they believed that the iRobot’s need to bump into something in order to “see” it – in other words, it has to bump into a wall to know that the wall is there – meant that its contextual intelligence was too limited. To some this meant it wasn’t actually capable of recognizing the environment (hence possessing no contextual knowledge) but only of responding to it. The iRobot’s reliance upon a series of seeming mistakes (a human being traditionally bumps into a wall mistakenly, not on purpose with the intent of learning one’s surroundings) caused these participants to declare it intelligent. For the other two individuals, focused intelligence was not seen as the same thing as “possessing intelligence.” For example, one of these individuals argued that the iRobot is, “just programmed to do something, so it does it.”

However, for the six participants (60%) who stated that the iRobot was intelligent, contextual intelligence alone was sufficient to declare the iRobot intelligent. For example,
one participant who decided as such stated, “it doesn't have broad expansive knowledge, but for what it needs to do.” Another participant argued that the iRobot was, “somewhat [intelligent], yeah. It knows if it goes over a dirty spot, [and] keeps circling around it to make sure it cleans well.” A third participant explained, “it knew its role - knew what it had to do,” and as such it could be declared intelligent. This is quite similar to the NPCs in the game. Since their role as guide, a character within a larger game narrative, was set from their creation, they knew exactly how to respond to players. Both, incidentally, had 60-65% of participants declare the AI intelligent. Anna, on the other hand, knew her purpose but could not know exactly what role she would be asked fulfill. There is the expectation of customer service, but she may be asked about product quality, product size, product availability, company history, or a variety of other topics. In real time, she would not know when someone logs into her chat window exactly what to expect.

For a device whose purpose and expectations rely completely on the physical environment and recognition of objects within that environment, the fact that users only referenced contextual arguments to justify their answers to questions about the iRobot regardless of their stance on its intelligence was to be expected (see Figure 21).
Similarly, the fact that all users (N=10) declared the iRobot to be less intelligent than a human and mentioned its limited contextual abilities in doing so is also understandable. When compared to human beings, users again made reference to the fact that the iRobot must rely on only one sense (touch) to understand its environment, consequently limiting its contextual intelligence. For example, one user stated, “I think it has a certain set of capabilities that it’s good at. It knows what to do in certain situations, but certainly not as smart as a human.”

Continuing this trend, it is again unsurprising that the majority of participants ranked the iRobot’s intelligence at less than five, and used the same contextually-based argument to do so (see Figure 22).
Six participants (60%) preferred a human being vacuuming their floor to the iRobot because they felt the human could perform the task more adequately and quickly. However, of the four individuals who preferred the AI, all but one of these individuals argued that the reason they preferred the AI was not because the AI could perform the task better but because they would feel uncomfortable asking another human being to complete such a menial task for them. One participant stated that he would “feel less bad” utilizing the AI, whereas another recognized that a human being could complete the task faster than the iRobot but would still prefer the AI to a human: a “person would have been faster, can think for themselves, [but] personally I wouldn't feel comfortable asking someone to pick up confetti, so I would use the [iRobot].” Even one of those individuals who preferred the human to the AI recognized his discomfort in asking a human being to vacuum for him: “Not sure I want something to do a task for me… but I prefer the human because they can see where the mess is.” Thus, half of participants (N=5) indicated that they would utilize the iRobot not because it was an intelligent device, but because they would feel uncomfortable
asking a human being to clean up for them. They preferred the artificial because it is distinctly not human.

These determinations makes it difficult to analyze the iRobot within the set of rhetorical requirements described in Chapter 3, namely because users do not even attempt to attribute rhetorical intelligence to the device. This, however, is expected and provides an answer to one of the questions posed within that chapter: Do users attribute any aspects of intelligence (rhetorical or otherwise) to the iRobot or do they deem it unintelligent considering it need not act rhetorically? Users clearly do attribute contextual intelligence to the iRobot, and this form of intelligence does not automatically classify the device as unintelligent. This analysis suggests, instead, that expectations rather than possession of intelligence may be more important in the ultimate determination on the part of the user as to the intelligence of the device.

Summary. The participants laid out an expectation for the iRobot that was clear: it should be able to clean a room to the satisfaction of its user. This expectation does not require the iRobot to possess rhetorical intelligence, but it does require a high level of contextual intelligence, specifically in reference to the environment (the physical layout of the room) and history (not vacuuming the same spot twice unless it needed it). Therefore, although the majority of participants felt the iRobot was less intelligent than a human being, ranking its intelligence as less than a 5, and would prefer a human being to the AI, the majority also declared the iRobot to be intelligent. Hence, we can conclude that the
possession of rhetorical intelligence is not necessary for a user to declare a device intelligent; the device must simply meet the expectations of intelligence that the user holds for it.

**Comparison Across Products**

The results of the analysis of advertisements in Chapter 3 suggested that rhetorical situations do exist within interactions between human beings and AI, and that AI placed in the role of rhetor within these interactions must clearly, independently, and purposefully demonstrate its rhetorical abilities in these situations in order to be declared intelligent. This chapter supports these conclusions, but adds to the complexity of the interaction by emphasizing the importance and role of expectations for the AI in the declaration of intelligence.

We see can see this through an interesting and important comparison of all three AI. A greater percentage of participants (60%, N=6) declared the iRobot intelligent than Anna (55.6%, N=5), with the NPCs ranking the most intelligent of all (62.5%, N=5). However, more participants ranked the iRobot’s intelligence at less than 5 (60%, N=6) than with either the Anna (55.6%, N=5) or the NPCs (37.5%, N=3). In other words, though the iRobot’s level of intelligence was declared less than either of the other two forms of AI, more participants declared it intelligent than Anna. Based upon users’ justifications of why they declared the iRobot intelligent (that it met expectations of contextual intelligence), this suggests that expectations are the key to understanding why users declare AI intelligent.
When we examine the abilities of Anna, the NPCs within Oblivion, and the iRobot, it is clear that Anna is the most independent of the three in that she is “flexible” and able to respond to situations where the goal of the user is not predetermined. She is, presumably, not constrained as much to a script as the NPCs within Oblivion and must be able to process more aspects of her context (social and historical in addition to environmental) than the iRobot. Thus, the expectations of her rhetorical intelligence will be greatest, but her ability to respond appropriately in rhetorical situations will be the most difficult given the overabundance of contextual and rhetorical information she must understand, process, and respond to in order to do so. Incidentally, she was ranked the least intelligent of the three by participants and declared intelligent by a fewer number of participants (see Figure 23).

![Average Ranking of Intelligence](image)

**Figure 23: Average ranking of intelligence across all three forms of AI**

Both Anna and the NPCs were expected to fulfill assistive roles, but from different positions of authority. In both the interactions between Anna and the NPCs, participants
approached the AI not knowing what to do next. In the case of the NPCs, they were not sure who to talk to or where to go. In the case of Anna, they were not sure which products they should look at first. Upon initial interaction with each AI, the NPCs responded to the player’s inquiry with a direction, an instruction, or an action. In the case of Anna, she responded with a question – a request for clarification as to what exactly the user was looking for (a couch, a lamp, etc.). The NPCs didn’t need to ask the player why they were present because they already knew – the medium of the video game itself presents an exigence of entertainment. Anna, on the other hand, needed to ascertain why the participant was on the website in the first place in order to answer any questions they might have – she needed to identify and understand her audience, context, and the exigence of the situation, all things that the NPCs were essentially “told of” in advance. The role of assistant, then, that Anna attempts to fulfill is more complex than that of the NPC and inherently more rhetorical in nature. Anna may have been deemed unintelligent or less intelligent by participants not only because she did not answer questions in expected and accepted ways, but also as a result of unrealistic expectations participants had of the AI – a harder task paired with higher expectations.

Furthermore, the NPCs followed to varying degrees a script set for them within the programming of the game and their actions, though independent, were guided by relationships (friend, enemy, etc.) that were predetermined, understood, and identified by human beings fully capable of understanding and responding to a rhetorical situation. Half of the rhetorical work, so to speak, needing to be performed was already done for the NPCs, enabling them to act rhetorically without having to actually “think” rhetorically, to a certain
degree. Thus, when the players found that not only did the NPCs act in accordance to their expectations, but did so in enjoyable and in some cases unexpected ways, they deemed the NPCs intelligent. Anna, on the other hand, was deemed unintelligent because she was unable to respond to rhetorical exigencies, only to contextually-based requests for information.

Unlike these two digital forms of AI, users did not have any rhetorical expectations of the iRobot. They did not engage the device in a social way nor expect it to engage them socially. They expected the device to be efficient and to complete a single task assigned to it, and many were surprised to find the engagement enjoyable. Although the device did not require the use of rhetorical intelligence, it was ranked higher and believed to be more intelligent than Anna because it met the expectations users had for it.

These initial results suggest that expectation is paramount to understanding the judgment of AI’s intelligence. If there's no expectation of rhetorical intelligence, then participants are more likely to excuse the lack of rhetorical abilities in the AI and still deem it somewhat intelligent (like in the case of the iRobot, where 60% of participants deemed it intelligent) and use its contextual awareness to justify its overall intelligence. In the case where an AI is expected to have rhetorical abilities like Anna or the NPCs, then rhetorical references are more abundant.
Figure 24: Comparison of all Contextual versus Rhetorical claims across three forms of AI

When we compare the total number of contextual references that users make to the total number of rhetorical references that those same users make when declaring AI intelligent or not, we see that the more complex the interaction, like in the case of Anna, the more that users reference both forms of intelligence when analyzing the AI (see Figure 24). The simpler the interaction and the clearer the expectations of the user, the more defined the expectations will be and, thus, the more skewed the references will be in terms of rhetorical versus contextual. Though the interactions with NPCs are to a degree complex, they are clearly defined as rhetorical or social due to the fact that they are preprogrammed and scripted as such, so the outcome of the interaction is much easier to understand and define, resulting in more rhetorical references in participants’ justifications. In the simplest of interactions and with the clearest of expectations, the iRobot, users relied completely on contextual justifications.
Ultimately, participants judged each of these products and its corresponding AI according to expectations they held as to the AI’s intelligence in its rhetorical and contextual forms or lack thereof. Given the fact that many participants had no prior experience with the AI tested, we must draw some conclusions as to what or how their expectations originated. One obvious explanation is through the marketing of these devices and products, which is known to affect production expectations (see Olshavsky & Miller, 1972). When the marketing sets a clear expectation for the user about the intelligence and abilities of the AI, such as with the iPhone and Siri, and then the device fails to meet those expectations, we refer to the interaction as unsatisfactory and product sales, correspondingly, drop (or at least fail to meet expectations). We find now that we also, apparently, deem the AI within the device unintelligent regardless of the complexity of the AI, such as with Anna.

When the AI met expectations, exhibiting the qualities of intelligence as discussed in Chapters 2 and 3, the AI was deemed intelligent, albeit less intelligent than a human being. When the AI failed to meet those expectations, the AI was deemed unintelligent and the product, correspondingly, a failure. In situations where users expected the AI to be able to act rhetorically, users referenced primarily contextual factors when attributing intelligence to the AI, but then pointed to rhetorical shortfalls when asked to explain in depth and more specifically the level of intelligence they believed the AI possessed. Ultimately, the more complex the situation in terms of both rhetorical and contextual abilities, the more complex and rhetorically-contextually integrated the justifications users utilized.
Chapter 6

Conclusion

This dissertation set out to address the lack of rhetorical research analyzing the interactions between AI and human beings. I have argued that a rhetorical and contextual analysis of these interactions is not only necessary to expand our understanding of these interactions but that doing so also presents new and exciting research opportunities for rhetorical scholars and computer scientists alike. To return to the example utilized in Chapter 1, recall that one of the articles that touted the arrival of Apple’s Siri explained that, “it can find you a good sushi restaurant nearby” (Blunsom as quoted by Aron, 2011, p. 24). The qualifier of “good” implied to the reader that the device would be able to not just locate a restaurant nearby but also evaluate its appropriateness and ultimate satisfaction for the user. It also implied that this was what iPhone fans desired of their new AI assistant. The follow-up articles, however, discussed Siri’s failure due to unmet expectations (see Pogue, 2012). This dissertation has shown that user expectations play an important role in user satisfaction and evaluation of AI, and that when those expectations involve a rhetorical exigence, the likelihood of an AI meeting those expectations is low. Had the individuals working with and on Siri at Apple performed a rhetorical analysis of their initial product testing, much like was done in this dissertation, they might have prevented and avoided the resulting consumer fallout in terms of expectations for the iPhone 4S. Knowing why and when we as users deem AI “intelligent” might explain why and when products that rely upon AI succeed or fail,
something definitely worthy of further study. Additionally, as users increasingly rely upon “smart” devices to make decisions or act in such a way that presupposes some degree of rhetorical intelligence or ability to act rhetorically, drawing the connections between AI actions and rhetoric becomes important in not only understanding the role of these devices in our lives but also speaks to the basis of the human-machine relationship. Allow me to explain by retracing the steps this dissertation has taken.

In Chapter 2, I discussed the literature surrounding the study of context, rhetorical situations, and AI to understand where rhetorical studies and AI research may have crossed paths or, as was more the case, could cross paths. This discussion highlighted the known and identifiable differences between context and the rhetorical situation as defined primarily by Bitzer (1968), Consigny (1974), A. B. Miller (1972), and Vatz (1973). The discussion also explored the differences between a rhetorical approach to context and a computer science-based approach, as defined by many scholars in the AI field (namely Crowley et al., 2002; Davis et al., 2004; Dey, 2001; Maskery and Meads, 1992; Maskery et al., 1992; Schilit and Theimer, 1994; Schilit et al., 1994). I emphasized that although context and rhetorical situations interact and are related on a complex level, rhetorical components of an interaction must be identified and studied separately but in tandem with contextual components in order to fully understand the relationship between human and machine. If users of AI hold different contextual and rhetorical expectations for a particular AI (which the participants suggested was the case), then in order to understand how and why we interact with and rely on AI in the ways that we do we must understand the distinction between the two.
The differences between the definitions and components of context (historical, social, and environmental), and rhetorical situations (exigence, audience, and constraints) were therefore reiterated in the resulting analysis of advertisements in Chapter 3 in order to initially identify the contextual and rhetorical expectations users may have of the AI that were to be tested and create guidelines for the analysis of the results of the participatory study. It also attempted to highlight the importance of advertisements to the creation of user expectations of AI.

This discussion also led to the distinction between two different forms of intelligence that AI could potentially possess – rhetorical intelligence and contextual intelligence. These separate definitions were then created so that participant answers could be coded and analyzed as indicative of AI’s potential to exhibit or mimic rhetorical or contextual intelligence. It resulted in the following standards that AI must meet in order for the average consumer to declare it “intelligent” that were then later used when analyzing when and why participants deemed an AI intelligent: (a) making and sharing judgment calls, (b) being attuned or focused on the needs of the user over other contextual pieces of information, (c) making it clear that the AI is the one making decisions, and (d) responding to an exigence both physically and verbally.

According to reports surrounding the launch and reception of Siri, it seems as though the reason consumers became disenchanted with the device was that they expected it to be smarter, as indicated by the headlines “Siri, why aren’t you smarter?” and, “Siri Is Apple's Broken Promise” (Pogue, 2012). Around the same time that these articles were published a
report by a market research firm revealed that the iPhone’s user loyalty rate declined for the first time ever since the phone’s initial availability in 2007 (Gilbert, 2012). Although Apple’s retention rates still remained high (hovering at 88%), even though the initial phone offering that Siri was available with came with some software problems (Apple’s own map app was a notorious failure), the fact that users were dissatisfied with Siri at the same time as user loyalty began to decline seems more than coincidental. Even though consumers recognized Siri’s abilities in certain areas – primarily contextual ones, such as entering an appointment into a calendar or making a reservation at a nearby restaurant – the device failed to meet expectations that were distinctly rhetorical in nature, such as the ability to suggest “good” restaurants in the area. Locating a restaurant and evaluating its quality pose two distinctly different problems to Siri, one of which she is fully capable of solving and the other just outside her reach. Why is the latter so difficult? Why are we asking her these questions in the first place? The results from the interviews conducted for this dissertation offer two answers – (1) unrealistic human expectations and (2) misplaced human needs for the AI.

Based upon the advertisements and articles surrounding Siri’s release, users developed expectations of Siri that she would truly be a human analog; hence the expectation that she could distinguish between a “good” and “poor” restaurant. The participants of this dissertation’s study show that when users hold expectations for an AI that AI fails to meet, they then find that AI unintelligent and unsatisfactory. Additionally, marketers and promoters believed that iPhone users wanted Siri to be able to replace a human being in a similar role. The results of this study instead suggest that users don’t desire human-level AI in their
devices but rather an AI with a narrowly defined and restricted purpose that is able to meet the demands of the user.

Anna, the automated customer service agent, most closely resembles an AI attempting to fulfill a role similar to that of Siri’s. Both serve the purpose of personal assistant to their human counterparts – a role that, as was explored in Chapters 3 and 5, generally requires both contextual and rhetorical intelligence – and both, incidentally, failed to meet user expectations. Rhetorical intelligence, again, is defined as the capacity to recognize, identify, and creatively respond, within a set of constraints, to an exigence and audience in a rhetorical situation as a rhetor. Contextual intelligence is defined as the ability to recognize, identify, and acknowledge the contextual elements of an interaction (but not process, respond, or interact with them).

At their surface, many AI are deemed intelligent by users due to their ability to act somewhat independently, be that through physical movement (as in the case of the iRobot) or verbal interaction (as in the case of the NPCs). However, when comparing the AI directly to a human being, all participants felt that every AI was inferior to a human being intellectually, and referenced rhetorical as well as contextual justifications to support their assertions. In the case of Anna, participants felt she could not answer rhetorical and contextual questions acceptably, and this, as was stated in Chapter 5, resulted not from her abilities (which, if analyzed technically, are nothing to scoff at), but the expectations that users held for her. Participants were satisfied with their interactions with the iRobot and the NPCs because they specifically met the expectations set for them. Although the iRobot was deemed the least
intelligent of all three forms of AI, users rated it more favorably than Anna because it met expectations. Had users expected Anna to only be able to assist them with, for example, locating a product on the website, the narrowed scope of her new role (that of an interactive site map) might have led to users appreciating her more and being more inclined to solicit her assistance. This suggests that a narrowed and focused purpose for AI is preferable to, and will lead to greater adoption rates than, a wide and far-reaching one. Users will be hesitant to adopt or purchase a product, program, or device with AI that they do not feel meets their expectations, as we see was evident with Anna. Users who deemed her unintelligent were not inclined to ever utilize her again, something marketers should take notice of. Scaling back expectations in advertisements could help users with establishing more realistic expectations for the products they purchase.

Expectations more than actual AI (inter)action, I have argued, led to the conclusions that participants reached within this study. If an AI met the expectations of a user, it was more likely to be deemed intelligent, as was the case with the iRobot. If the AI did not meet expectations, users saw it as being ineffective and too limited in its capabilities. Users expected the iRobot to perform a simple, repetitive task for them, as the advertisements for the device promise. When the iRobot successfully cleaned the floor, users praised its ability to complete its very contextual and relatively simple task, concluding that the device did indeed possess (contextual) intelligence. Even when participants aided the robot in completing its task, the sole fact that the iRobot completed it – hence, meeting expectations – was tantamount to a declaration of intelligence. Similarly, although the NPCs within the
world of Oblivion follow a preset script (albeit with semi-independent physical action) to push the player towards a predetermined outcome within the game world, players expected and desired the characters to act in this way and, hence, they favored the NPCs over Anna.

Participants also prefer, then, AI with less autonomy but more directed and specialized intelligence. For these users, the illusion of rhetorical intelligence within the constraints of a confined purpose or environment satisfied their expectations of the AI. An AI that was able, in other words, to mimic a human being acting rhetorically was acceptable to players of the game because the AI still satisfied the expectations of the player even though it was not actually rhetorically intelligent.

In the discussion leading up to the release of Siri, advertisements and ‘experts’ alike praised Siri’s ability to act independently to aid a human counterpart in organizing his or her schedule and maintaining the activities and actions of everyday life. In reality, this set an unrealistic expectation for Siri that she would in no way be able to meet. Initial adopters of Siri likely were drawn to the idea that they could replace (financially and otherwise) a human assistant with an artificial one. Individuals who didn’t currently have an assistant suddenly would have one incorporated into a device they already planned on getting (a new phone). The convenience of being able to offload some menial responsibilities onto a machine was likely very appealing to individuals with very busy schedules (hence the “Another busy day” statement Siri gives to the viewer in the Siri advertisement in Chapter 3).

Rhetorical intelligence, though seemingly desirable, is at present unattainable for the products tested in this dissertation, and likely many of their competitors and other
commercially available AI-enabled products. This form of intelligence requires an ability to process and recognize aspects of an interaction that cannot be understood by a device limited in its ability to experience and interact with the physical and social world simultaneously. It is possible, however, to mimic the same outcome. That request for a “good” restaurant in the area could be answered by a quick aggregation of reviews for nearby restaurants from social media sites and presented to the user in a usable form to make their own decision. There is an important distinction here, though, between Siri making the assertion of “good” and human beings making the same assertion with Siri simply being the medium for message delivery.

Mori’s (1970) Uncanny Valley suggests that human beings are put off by the idea of a machine that truly mimics a human in appearance and action. This may not be the case with artificial intelligence. Participants who preferred Anna or the iRobot to a human did so distinctly because Anna and the iRobot were not human; they desired someone capable of mimicking a human being because they didn’t want to burden an actual human being with the task or conversation they were engaging with the AI for. Although these participants were in the minority (with less than 50% preferring the AI in both instances), they made reference to the fact that these two AI could complete menial tasks that, for some, would cause them to feel uncomfortable asking another human being to do for them (shop or vacuum for them). Although one cannot state this definitively, as these users felt the AI was not fully able to mimic a human being (which is the core of Mori’s argument), this preference would be worthy of further exploration in future studies.
Users, no matter their human/AI preference, want their AI to be task-oriented and focused in its intelligence, as was evident by the NPCs and iRobot. Anna and Siri both failed to appeal to users not because their programming wasn’t incredibly complex, allowing them to process human language and understand it to a certain degree, but because they were not able to meet the rhetorical expectations of the user. Furthermore, the results of the interactions with the NPCs and iRobot suggest that it may be more amenable to users and more appropriate to market and design AI that is not purported to be a human analog, but rather one that is a tool used to complete a focused task better than a human being. In other words, Siri cannot recommend a good restaurant for you, but she could synthesize the results of prior, recorded rhetorical discussions held between human beings on a message board or ratings board about restaurants in the area, thereby being a tool – a secondary mediator in presenting the information, so to speak – in satisfying the exigence that you have presented without being the actual rhetor that acts to satisfy the exigence. She could then make a reservation for you at the restaurant you choose at a time that is convenient for your schedule, add an entry to your calendar for the meal, and notify your co-diners of the date and time of the reservation, all while you’re busy driving to work in the morning. The difficulty here lies in Siri recognizing that the question you pose – specifically referencing a good restaurant – is one that is rhetorical in nature.
The Research Questions: ConclusionsReached

One can make these determinations about Siri based upon the answers to the questions that this dissertation posed. Furthermore, the answers to these questions provide valuable data and information that researchers can use as springboards for further studies and applications. Before I explain how these results can and should be used, though, let us review these questions and their answers.

The first research question, RQ1, asked: What expectations and preconceived notions do users have of AI? Understanding the answer to this question helps to understand why we utilize AI in the first place and what guides our interactions with the AI. The answer to what expectations and preconceived notions users are likely to have can be found in the analysis of the advertisements completed in Chapter 3 and, what they do have, to a limited degree, can be found in participant’s answers discussed in Chapter 5. Although the question intended to be searching for answers with regards to the AI in general, the answers also provide some insight into user expectations as they relate to rhetorical and contextual intelligence of the AI examples studied here. Advertisements for AI-enabled products provide complex and compelling visual metaphors for the expectations, interactions, and applications for those products. These metaphors provide an indication of what the user will experience when interacting with the AI, and in doing so play an important role in creating the expectations the user will have of the AI. Ultimately, this dissertation shows that users’ expectations and preconceived notions of AI develop as the result
of the combination of a user’s prior experience with the AI, the goal of the user’s interaction with the AI, and the advertisements that the user has been exposed to with relation to the AI or similar AI. These expectations then guide their opinions and goals of their interactions with the AI.

However, the expectations and preconceived notions that users hold can only be ascertained if one also knows the history between the user and the AI (or similar AIs) and is dependent upon the purpose and goal of the interaction. For AI whose task is purely contextual in nature, such as with the iRobot, expectations can clearly be established: the device or AI must be able to complete the task presented to it. For those AI whose task is more complex, being a mixture of contextual and rhetorical interactions, expectations and preconceived notions can only and should only be identified after further study, such as through a usability or user experience survey.

Research questions 2 and 3 relate to one another as they basically ask the same question, with question 2 addressing contextual factors and question 3 addressing rhetorical ones. Question 2 again asks: (a) Do users rely on historical, social, and environmental contextual factors in explaining or making their attributions of intelligence to artificial systems? (b) If so, how? Question 3 asks: (a) Do users rely on information about audience, exigence, or constraint in explaining or making their attributions of intelligence to artificial systems? (b) If so, how? The goal of these questions was to understand the differences between users’ perceptions and recognition of rhetoric and context in their interactions with the AI. This
understanding is important when studying the human-AI relationship because it helps us to identify the nature of this relationship, which in turn allows us to pinpoint a myriad of factors that contribute to users’ opinions of the AI and, in turn, the product possessing the AI.

The answer to the first part of both research questions is, of course, the affirmative, but that the reliance differs based upon the type of interaction users had with the AI and their expectations of the AI is what’s interesting here. The results of this study showed that how a user relies upon the different elements of the rhetorical situation or the different contextual factors present in the interaction depends not on the AI but on the user. This result shows partial support but also a critical departure from the ideas of context discussed by scholars at the CHI Conference summarized by Maskery and Meads (1992) and Maskery, Hopkins, and Dudley (1992). These scientists discussed the fluidity of the definition of context and the difficulty that results when scientists attempt to pin down a single definition of context. The results of this study suggest that these scientists, and others in similar circumstances, should attempt to understand the context (and rhetorical situation) of the interaction between human and AI, by not just looking at the AI but at the user as well. Thus, the results of this dissertation suggest that an expansion of these approaches to context through the incorporation of user research is needed in order to improve the proper usage of context (both practically and semantically) within AI research.
The final research question, R4, puts rhetorical and contextual factors in contrast with each other: how do users balance and/or associate contextual factors (RQ2a) and rhetorical factors (RQ3a) when explaining or making attributions of intelligence to artificial systems? The analysis in Chapter 5 again provides us with an answer, although one greatly informed by the analysis of advertisements found in Chapter 3. Here again, we find expectations as the key element to understanding user perceptions of AI. When the interaction between human and AI presented an exigence for the AI to respond to, and the human expected the AI to respond to the exigence, then users relied upon rhetorical factors in deeming the AI unintelligent. In situations where the interaction between the human and AI was predominantly contextual in nature, as was the case with the iRobot, users did not rely on rhetorical factors in determining the robot’s intelligence but rather solely contextual ones. The nature of the interaction and the expectations of the user combined resulted in the rhetorical versus contextual arguments and justifications participants used in their determination of intelligence for the AI. This result is significant in its applicability to both rhetorical scholars and AI researchers. It proves that users recognize a rhetorical element to their interaction with AI, thus providing further justification to Hunter’s (1991) call to arms for rhetorical scholars to turn their attention towards AI. It also points a definitive finger towards the complexity of the relationship between human and AI and suggests that AI researchers must expand their understanding of situational awareness for AI, especially for those devices or programs that will be engaging human users in a social role or setting.
Limitations

Although the results of this study are thus informative and applicable in a variety of industrial applications, which I will discuss momentarily, there are a few limitations to this study that should be mentioned: its timeliness, breadth of participants, and constraints on the analysis based upon the definitions used.

According to Moore’s Law (Moore’s law, 2014), processing power in computers doubles approximately every 18 months. As a direct result of this increase, the ability for computers to do more and, in essence, be more increases as well. It would follow, then, that although this study references technologies that, at the time the research was conducted, were considered advanced, within just a few short years the technology may become obsolete, replaced by newer versions and iterations. The exposure of the participants in the study to the technology tested, and their corresponding reaction to that technology, parallels the technological advancements that have and will be made. In other words, the reaction of the participants in this study to the technology tested will remain relevant and useful for scientists, theorists, and practitioners despite the irrelevance of the technology.

The participants in this study were solicited from a variety of classes at NC State University in the hope of attracting a breadth and depth of participants in terms of experience with technology. Although the study participants do represent a spectrum of computer expertise, the fact that the majority of the participants were in the same demographic category (freshman or sophomores, age 18-19, at a local public University taking the same class) may have limited the richness of the participant responses. Since the results of this
study emphasize the importance of expectations, individuals with different levels and types of experiences with AI prior to the study may have resulted in different expectations of the same AI.

Finally, in this study I chose to use definitions of context and the rhetorical situation, as well as their corresponding parts, which not all readers may agree with. The nature of studying the interactions between human beings and machines is a complex one, and these definitions are fluid. Over time, we as researchers uncover new applications for terms and, as a result, new definitions may emerge. As occurred with the changing definition of the rhetorical situation highlighted in Chapter 2, I fully expect readers to challenge the definitions that I have chosen to use. My challenge to these readers would be to replace their chosen definition with my own and see if the results obtained here still remain valid. I predict they would, although some effort in recoding the participant data may be needed.

**Implications and Applications**

The implications and, more importantly, application of the findings of this dissertation are multi-faceted. Understanding the rhetorical and contextual nature of the interaction between human and AI and the ability for AI to possess rhetorical and contextual intelligence (simultaneously or not) can be applied to research, both theoretical and practical, within multiple academic communities as well as within industry for those creating commercially available AI products.
Computer scientists in the academy can and should use this research to further their understanding of the terms “context,” “situation,” and “rhetoric.” The use of the term context should be an informed and deliberate one, recognizing that the context of an AI will differ from its rhetorical situation and incorporate the user’s perception of context and the rhetorical situation as well as the AI’s. The definition of context developed for this study, paired with the operationalized definition of the rhetorical situation, would be a good starting point in doing so.

Furthermore, knowing that the interaction between the human being and AI can be rhetorical necessitates studying the role that the AI will play in the rhetorical situation and whether rhetorical intelligence will be necessary for its success. Identifying its purpose in the rhetorical situation – as rhetor or audience – will be critical in understanding how and why an AI succeeds in its dialogue with a human and should be included in any study examining human-AI interaction. For example, if the developers of Anna had studied the discourse between two human beings in similar interactions to those expected of Anna, looking for subjective terms such as “good” or “bad,” they would have recognized the need for Anna to have access to reviews or opinions of previous purchasers (something unavailable on the Ikea website at present time) in order to respond rhetorically.

Studies like this would be useful for those in industry. The most practical application of this dissertation, then, is in the structuring of studies utilized in the product development life cycle. From the start of the cycle to the end, companies should structure studies and testing to measure success or failure for the AI from the independent actions of the AI as well
as the human interlocutor. The AI may meet certain benchmarks, but if the human perceives the AI as ineffective, then the AI’s potential commercial success would be limited or perhaps even nonexistent. We know from the results of the testing done here that user expectations of the AI play a critical role in the success or failure of a product. Developers should do extensive research, then, into expectations of a potential product *before* the design and development phases begin to ascertain what barriers the AI may face in being accepted, understood, and, ultimately, successful. For example, Apple could have studied what users, those both with and without a human assistant already, would expect of an automated assistant. They could have analyzed users’ direct statements on their expectations of the AI as well as a sampling of questions that they might ask Siri to ascertain expectations of the AI. Then, in the advertisements for the product, they could allude to Siri’s capabilities, which are vast, but make it clear the types of questions that would be appropriate. The ad in Chapter 3 had Siri responding to a question of, “What’s my day look like?” with “Another busy day today, Karen!” If, instead, the ad showed her responding with, “You’ve got a lot scheduled today, Karen!” this simple change in response would make clear that she’s responding with a fact, not an “opinion.” Blunsom (as quoted by Aron, 2011, p. 24) claimed that Siri could answer a question such as “Where’s a good nearby sushi restaurant?” Ads or commercials should highlight both Siri’s capabilities and limitations with an answer such as “Three nearby sushi restaurants received scores on restaurant.com of 4 stars or higher” (or another website based upon the demographics of the user, such as kidfriendlyrestaurants.com for a parent) and a list of those restaurants.
For those within Rhetorical Studies or Rhetorical Criticism, the recognition of AI as being a potential rhetor or audience and the identification of two forms of intelligence (rhetorical and contextual) that factor into a dialogue provides a plethora of opportunities to study AI, from both a theoretical and practical standpoint. Hunter’s (1991) call for rhetorical scholars to point their attention in this direction could be answered by re-examining existing rhetorical theories by replacing a human or group of humans in the theory with artificially intelligent machines (see, for example, Miller, 2007). Scholars should attempt to see if rhetorical intelligence is actually necessary for an exigence to be satisfied, for example, within any number of discussions or theories about exigence. It may be that mimicry of rhetorical intelligence is sufficient to satisfy an exigence, and if that is the case, was it really an exigence to begin with if actually responding rhetorically isn’t necessary? AI as audience should also be considered to see if AI can respond to rhetorical prompting; if it can – what does it mean that an entity can be persuaded rhetorically but not act rhetorically?

Furthermore, the interactions between AI-enabled products and human beings provide new data prospects for rhetorical critics. For example, any new AI-enabled product could be examined through rhetorical criticism for a variety of purposes: new genre development, audience theory development, etc. I would argue, as well, that AI research is an important avenue for proving the importance of rhetorical scholarship in areas of academia outside of the traditional English and Communication(s) departments. Ultimately, the implications of this dissertation for rhetorical studies are too numerous to list here due to the sheer volume of applications that can be made.
Lynette Hunter (1991)’s attempt to promote the relationship between Artificial Intelligence and rhetoric mostly fell on deaf ears. This dissertation raises the charge once again. Not only is the relationship between AI and rhetoric (practically and theoretically) a strong one, but it is one that is essential to understand if we are to truly grasp the world within which we are rapidly being thrown into. AI-enabled products are quickly becoming essential to our way of life. In order to truly understand the human-AI relationship, we must ultimately explore their interactions contextually and rhetorically, recognizing the differences between contextual and rhetorical intelligence, and acknowledging the limitations of AI when it comes to rhetorical discourse. If industry is going to continue on its path of incorporating AI into everyday products, then Hunter’s charge is never more important than it is today.


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Appendices
Appendix A: Demographic and Screening Questionnaire

1. What is your gender?
   • Male
   • Female
2. What is your age?
3. Are you a student?
   • Yes
   • No
4. If you ARE a student, what is your major?
5. If you ARE NOT a student, what is your current occupation?
6. What is the highest level of school you have completed?
   • Grade School
   • High School
   • College, 2-year degree
   • College, 4-year degree
   • Graduate School
7. What would you rate your level of computer expertise?
   • 4 – Highly proficient
   • 3 – Moderately proficient
   • 2 – Somewhat proficient
   • 1 – Not very proficient
   • 0 – No computer experience whatsoever

Please answer the following two questions if your major is in COMPUTER SCIENCE.
8. If your degree is in COMPUTER SCIENCE: What is your primary focus for your degree/area of study?
9. If your degree is in COMPUTER SCIENCE: Describe your experience with AI.

Please answer the following question if your degree is NOT Computer Science.
10. If you are NOT a Computer Science Student: Please list any courses you have taken in Computer Science. If none, simply state “none”.
Appendix B: Interview Questions

1. What was your overall impression of the [robot, customer service agent, NPCs in the game]?
2. Please describe your interaction with the AI. What did you do? What did it do in response?
3. What environment would you think you would normally engage with this entity within? (i.e. living room, classroom, etc.)
4. Did you enjoy engaging with the AI?
5. If given the option to interact with a human being in the same role as that [robot, customer service agent, game player], would you prefer the AI or the human? Why?
6. Would you say that the AI you engaged with was intelligent?
   • Why would you say that?
7. Would you say that the AI was more or less intelligent than a human being?
   • Why would you say that?
8. On a sliding scale of intelligence, 1 being the intelligence of a rock and 10 being the intelligence of a human being, where would you place this AI?
   • Why do you say that?
9. What purpose would you say this AI served?
10. Have you engaged with [an agent, robot, video game] like this or this exact one before?
    • Would you be likely to engage with this AI in your normal life? Why/why not?

AGENT:
Say this agent was part of a larger game that you were playing online, would that affect your opinion of the agent?

GAME:
Say one of the NPCs from this game was used as a customer service agent on a website, would that affect your opinion of the agent?

VACUUM:
If I told you that some groups take these vacuums and turn them into fighting robots and stage “battles” with them, would that affect your opinion of it? Why/why not?

LAST INTERVIEW:
I asked you to rate the level of intelligence of the AI you interacted with on a scale of 1 to 10. I ask you now to rate the three in relation to each other - which do you feel is the most intelligent and which is the least intelligent? Why?