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A Novel Approach to Employee Recruitment: Gamification

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A Novel Approach to Employee Recruitment: Gamification

by

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Abstract

Gamification is the use of game-design in a non-game context to attract, engage and elicit desired behaviors. Recently, a number of organizations have employed the use of gamification for the purpose of employee recruitment. Results of these gamified recruitment processes are purportedly positive, although no empirical studies to date have been conducted to determine their effectiveness. This thesis was designed to provide an objective and empirical analysis of the efficacy of gamified recruitment procedures compared to traditional recruitment practices. Results indicated that traditional recruitment processes were more effective in changing participant attitudes towards organizations than the gamified processes. However, although traditional recruitment practices engendered more positive attitudes towards companies, both recruitment practices generated a similar amount of interest in terms of applying for jobs at the respective company. Implications of these findings are discussed.

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CHAPTER ONE: INTRODUCTION

The recruitment and retention of talented individuals is paramount to the success of any organization, making recruitment one of the most crucial human resource functions for organizational success (Breaugh, 2013). Advances in technology have propelled organizations towards the adoption of internet-based recruitment methods (Anderson, 2003, Kraichy & Chapman, 2014). Cober, Brown, Keeping, & Levy (2004) estimate that 50% of all new hires originate from the internet, with the majority of candidates coming from organizational recruitment websites in particular. Emerging research on recruitment websites is beginning to identify factors that affect applicant attitudes towards organizations. Early research by Cober, Brown, Levy, Cober, & Keeping (2003) found that the navigational ease of finding information on a website has been shown to relate to organizational attractiveness. Similarly, website content, aesthetics and amount of job and organizational information have been found to positively influence attitudes towards organizations and subsequently applicant attraction (Gregory, Meade, & Thompson, 2013). These sentiments are further corroborated by Johnson and Gueutal (2011) who contend that web-based recruitment methods offer potential candidates a greater amount of information in less time and cost to the organization. Further substantiating the effectiveness of web-based recruitment, Allen, Van Scotter and Otondo (2004) concluded that richer communication media (i.e. interactive media) had a greater influence on attitudes about joining an organization. Interactive media are effective because they offer the potential to adapt to potential candidate's needs. Kraichy and Chapman (2014) demonstrated that online recruiting content can be tailored to match the cognitive or emotional bases of potential applicants' attitudes. Recently, a number of organizations have taken a new and more advanced interactive approach to online recruitment. That is, they have created simulations that are

designed to introduce candidates to the organization whilst engaging their applicants in an entertaining way. Although these simulations may be related to the concept of the realistic job preview (RJP) they are not designed to inform individuals about job specific information. Instead, they typically aim to introduce and educate applicants about the organization and its values through game play.

This paper investigates a novel approach to employee recruitment through the use of a fairly new concept, gamification. Recently, organizations have begun to realize the potential of gamification for motivating and engaging their employees. A recent report estimates that over 70% of Forbes Global 2000 companies plan to use gamification for the purposes of marketing and customer retention (Van Grove, 2011). Gamification is the use of game attributes to drive game-like behavior in a non-game context (Wu, 2012). That is, it harnesses the individual's predisposition to engage in an intrinsically motivating task through the use of motivational mechanisms of game design. The term strictly refers to game design as a mechanism for engendering certain behaviors such as increased work engagement. Despite the enormous potential for gamification to improve a host of organizational processes, little is known about the psychology of gamification and the underlying mechanisms by which it influences individual behaviour. By applying theory and empirical findings in the psychological literature to the gamification process, this paper focuses on how and why and when people are influenced by gamification. Understanding these mechanisms has the potential to improve the design and efficacy of gamification processes across a number of organizational initiatives. For the present paper we focus on a relatively new opportunity of using gamification to attract potential job candidates and illustrate how we can incorporate and adapt existing psychological theories to understand how gamification works in the recruiting context.

1.1 Introduction to Gamification

Many people find the prospect of gamification highly appealing. A study by Saatchi and Saatchi (2011) found that 55% of those employed in the U.S reported that they would be very interested in working for a company that utilizes gamification as a method to increase productivity. Although the term "gamification" has only recently entered business vernacular, the concept behind the term has been around for many years. At its core, gamification utilizes game-design to turn an otherwise mundane task into an intrinsically motivating task. Burke and Hiltbrand (2011) hypothesized that the sudden rise in popularity may be explained by the changing demographics of the business environment.

Recently, a number of organizations have employed the use of Gamification for the application of recruitment. For example, the U.S. Army has released a tactical shooter game for the purpose of recruitment titled "America's Army". The simulator introduces the player to various positions within the army while simultaneously providing organizational values to the player. Edery and Mollick (2008) found that the simulator engendered positive impressions of the Army in 30% of Americans aged 16-24. Further, the game had more impact on recruits than all other forms of Army advertising combined (p.141). Whether positive impressions of the game augmented recruitment outcomes remains a question. Similarly, a number of other large international organizations have utilized a gamified recruitment process. The Marriott, an international hospitality company has created a simulator whereby users play the role of a hotel manager. Similarly, L'Oreal, the world's largest cosmetic company has also gamified their recruitment process. Allowing potential candidates to experience various jobs within different departments of the company. Another example of a gamified recruitment process is one released by Maersk, an international shipping, oil and gas company. In this simulation, players engage

with the company through managing the exploration and drilling of oil. Despite the growing popularity of gamification in recruiting and the apparent success in some cases, little is known about how these processes influence applicant attraction or if the return on investment is positive.

1.2 Recruitment

Employee recruitment is defined as "an employer's actions that are intended to 1) bring a job opening to the attention of potential job candidates who do not currently work for the organization, 2) influence whether these individual`s apply for the job, 3) affect whether they maintain interest until a job offer is made and, 4) influence whether a job offer is accepted (Barber, 1998). A critical first step in the employee recruitment process is to attract individuals to apply for positions in the firm (Rynes, 1991). At this stage, organizational attraction is largely generated by employment advertising (Barber, 1998). If individuals do not apply for jobs, they cannot be influenced by subsequent recruitment activities (Barber & Roehling, 1993). Organizations that attract more qualified applicants have a larger pool of applicants to choose from, which greatly increases the utility of selection systems (Boudreau & Rynes, 1985). Much of the extant research in recruitment has largely focused on the effects of print advertisements and recruitment brochures on perceptions of organizational attractiveness (Williamson, Lepak, & King, 2003). In general, these studies have found that recruitment mediums provide signals to prospective applicants about company attributes which subsequently influence their likelihood of pursuing employment opportunities with the organization (Barber, 1998). Presently, the majority of organizations recruit through their own website or through internet-based job boards through traditional recruitment advertisements (Cober et al, 2004). Research on job advertisements have

found that initial applicant decisions are influenced by factors such as: information regarding the job or organization, pay and benefits, and the location of the work (Barber & Roehling, 1993). Further, information pertaining to organizational image and the amount of information have also been found to predict applicant attraction to an organization (Gatewood, Gowan, & Lautenschlager, 1993; Yuce & Highhouse, 1998). More importantly, Van Hoye and Lievens (2005) found that job advertisements were able to partially counter negative publicity about an organization on individual's attraction to the organization. Further underscoring the importance of recruitment advertisements. However, recruitment advertisements may not be able to exert their effects if they cannot engage the attention of the potential job seeker. Redman and Matthews (1992) have noted that casual job seekers are likely to "skim" through ads in the classified section of a newspaper. To understand this phenomenon, Jones, Shultz and Chapman (2006) applied the Elaboration Likelihood Model (ELM) to further understand the cognitive processes of job applicants. They found that job seekers high in Elaboration Likelihood (EL) paid greater attention to the message within the recruitment advertisement while those lower in EL were more enticed by the physical characteristics of the job advertisement. Breaugh (2013) has defined employee recruitment as an attitude formation/change process that involves individuals forming an impression of what working for an organization would be like. Soelberg's (1967) decision-processing model explicates the importance of understanding early job pursuit decisions from the applicant's perspective. According to this model, job seekers select a small number of favorite organizations on the basis of very limited information. They then engage in a choice confirmation process in which subsequent organizations and information are compared to their initial favorites (Power & Aldag, 1985). Critical contact theory suggests that the recruitment source (e.g. newspaper ads, job boards, organization's website) in which a potential

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applicant makes initial contact with has proximal effects on applicant attraction (Barber, 1998). Subsequently, from an organizations perspective, the primary goal during the initial phase of recruitment is to engender positive attitudes towards the organization by efficiently disseminating information regarding the organization. In this paper, we will address and test the features of gamification that enable it to be used as persuasive design, advocating for its potential to change attitudes towards organizations and/or industries.

We propose that Gamification in the recruiting context is essentially an attempt to change a potential applicants' attitude toward the organization through engaging them more deeply in the recruitment process. For example, Marriot Hotels has developed a game that simulates the duties of hotel managers for the purpose of introducing potential applicants to the challenges and opportunities of managing a hotel. By doing this they hope to change the attitudes of potential candidates toward the hotel industry and Marriot in particular (Lopez, 2011). By conceptualizing recruitment as an active process of persuasion (Chapman & Jones, 2002), we can draw upon the persuasion literature for theoretical guidelines to understand how and when an interactive recruitment medium such as gamification can influence applicant attitudes and attraction to an organization/ industry as a whole. In order to help establish whether gamified recruiting is more efficacious than traditional recruiting approaches it will need to be shown to be more persuasive. Given the strength of manipulations in a game setting to engage applicants, we propose that gamification will prove more effective at persuading potential applicants to apply for positions. We begin with a general hypothesis that gamification will be superior followed by hypotheses aimed at identifying the mechanisms by which gamification attracts applicants to companies.

Hypothesis 1: A gamified recruitment medium will enhance organizational attractiveness perceived by potential applicants more than a traditional recruitment medium.

1.3 Attitudes

Attitudes are composed of three components, beliefs (cognitive), feelings (affect) and behaviors (Petty & Cacioppo, 1984). An individual's cognitions about an organization/industry includes their perception of what they believe is true (e.g., hotel management is mindless and boring). Whereas an individual's affect describes the emotional aspect they attach to the attitude, or feelings towards the organization/industry (e.g., I feel negatively about the idea of working in a hotel) (Jones & Chapman, 2006). Aspects of game design can be leveraged to influence beliefs and/or affect. For example, setting the game difficulty at an appropriate level can impart information to influence the belief components of attitudes (e.g., 'hotel management is a lot more complex and challenging than I thought') and affective components of attitudes (e.g., 'I'm pretty good at this and it is fun so I feel less negative about working in a hotel'). Conceptualizing Gamification as an interactive recruitment medium, or advertisement, Brown and Stayman (1992) found that individuals' attitudes toward advertisements have been among the best predictors of advertisement effectiveness. Moreover, attitudes formed toward advertisements are positively associated with further exploration of the advertisement source (Olney, Holbrook, & Batra, 1991). In corroboration, Allen, Mahto and Otondo (2007) state that recruitment websites are a form of advertisement for jobs within the organization. They further postulate that attitudes that individual's form about recruitment websites should influence their attitudes about the organization itself and, as an extension, influence attraction towards the organization. A gamified recruitment process may influence attitudes towards an organization through challenging game

design. These attitudes may then predict applicants' information seeking behaviors on the respective organizations website.

Hypothesis 2: Attitudes developed towards the Gamified recruitment process will positively influence attitudes towards the organization.

Hypothesis 3a: A Gamified recruitment medium will be more effective in changing the affective component of an attitude towards the respective organization than traditional recruitment medium.

Hypothesis 3b: A Gamified recruitment medium will be more effective in changing the belief component of an attitude towards the respective organization than a traditional recruitment medium.

Researchers have long known that once an initial attitude is formed, it is often difficult to change (Maio, & Haddock, 2007). This phenomenon may be explained by three mechanisms: selective exposure, confirmation bias and information- processing bias (Maio & Haddock, 2009). Once an initial attitude is formed, individuals are motivated to defend their position. This may be through an avoidance of information that is counter factual to the individual's attitude. Selective exposure is found to be stronger when the individual holds a stronger attitude. Similarly, confirmation bias asserts that individual's seek to avoid internal psychological conflict. That is, they seek information that confirms their pre-existing beliefs, feelings and behaviors (Petty, Wegener, & Fabrigar, 1997). People have a penchant for biased information processing (Kunda,

1987). Researchers have found that when individuals are presented with a two-sided message (a message that contains both attitude congruent and incongruent information), they are more inclined to process the arguments that are in favor of their attitude, increasing the strength of their initial attitude (Crano & Prislin, 2006). In addition, researchers have even found that when an individual holds a strong attitude (e.g. this company is resilient and will succeed), information opposing this attitude (e.g. this company's finances say otherwise), may actually polarize and strengthen the initial attitude (Breaugh, 2013). Consequently, changing attitudes through Gamification should be most effective with potential applicants who have less knowledge and existing beliefs about the target organization. Further, the mere exposure effect suggests another mechanism through which Gamification can change attitudes (Zajonc, 1984). According to the mere exposure effect theory, familiarity leads to positive affect and attraction. Exposing game players to the brand repeatedly through game play, logo placement and so forth leverages the mere exposure effect to increase affect toward the organization. At its simplest level, Gamification can capitalize on mere exposure to increase familiarity and attraction to organizations.

Hypothesis 4: A Gamified recruitment medium will be more effective with less recognized organizations than a traditional recruitment medium

1.4 Elaboration Likelihood Model

Attracting the attention of a potential job applicant to the organization is the first step in the recruitment process and attitude change. It is important to distinguish between two aspects of attraction, 1) bringing the job position to the attention of the individual and 2) engaging the

prospective job seeker to actively process information presented. Jones, Schultz and Chapman

(2006) found that potential candidates often skim through job advertisements without

systematically processing the information. In this regard, attention is paramount to whether an

individual forms a strong or weak attitude towards an organization. The Elaboration Likelihood

Model (ELM) is a model that describes when message processing is likely to be more

deliberative (central route) or superficial (peripheral route) (Petty & Cacioppo, 1984). Central to

this theory is the idea that attitude change is dependent on an individual's motivation and ability

to process the persuasive message. If an individual possess' both the motivation and ability, a

central route of persuasion will occur leading to greater scrutiny of the quality of the persuasive

message and ultimately stronger attitudinal changes. Conversely, if the individual lacks

motivation or ability to process the information, a peripheral route of persuasion will occur,

leading to weaker and more transient attitude changes. Depending on the route of persuasion

(central or peripheral), the ELM suggests that factors within a message may be made more

effective. For instance, if an individual is able to carefully scrutinize information (central route),

the strength of an argument determines attitude change. If, however, an individual is peripherally

processing, than factors such as message length, number of arguments and credibility of the

message are more influential. Understanding how persuasive message processing occurs at

different levels of EL is critical for understanding how Gamification works and how it can be

improved. For instance, the game could be used to increase engagement and hence central

processing of recruiting messages, or the game could distract the candidate with an engaging task

(i.e. lowering EL) while simple arguments like logos are placed in the context of the game to

increase familiarity and affect toward the company. A proposed model for a Gamified

recruitment process is illustrated by figure 1.
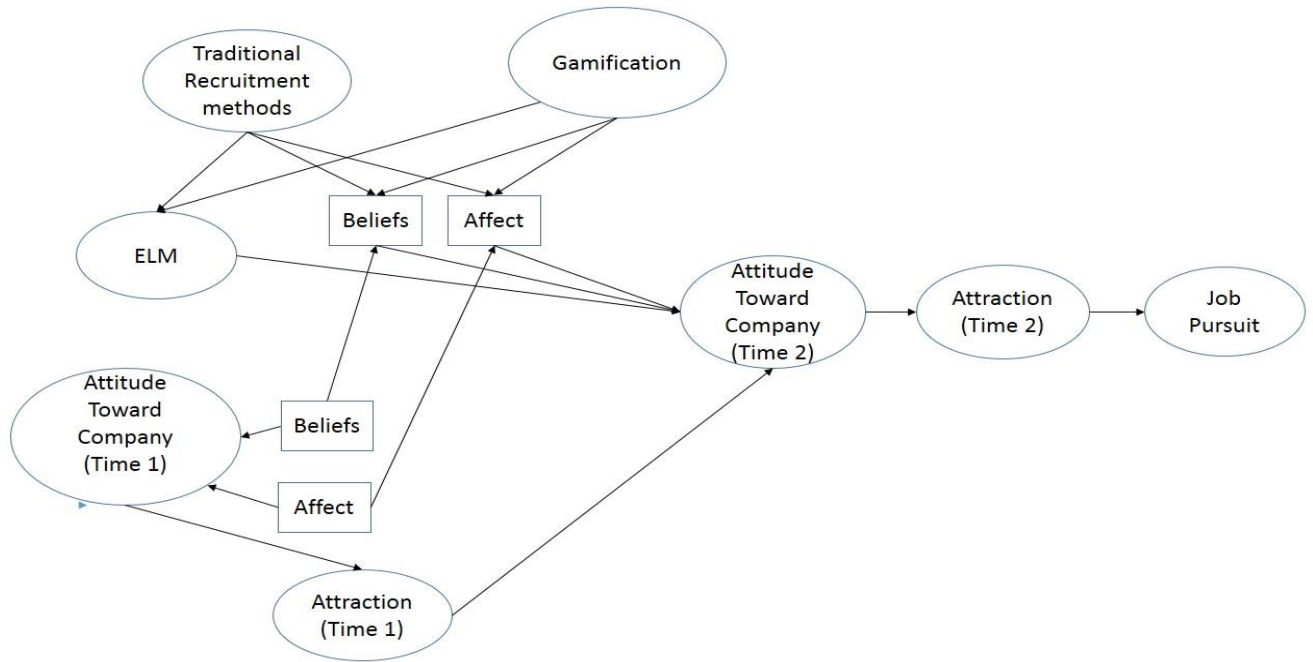
Figure 1: Proposed model for a Gamified recruitment process

This model postulates that initial attitudes (time 1) will determine how well the Gamification process is received. Attitude change is engendered through appealing to both the belief and affective components of attitudes through the process of the Elaboration likelihood Model. Lastly, positive attitudes towards the organization or industry will then increase the likelihood of application behaviors.

Research question 1: Gamified recruitment processes will influence attitudes through both beliefs and affect towards the target organization or industry through the Elaboration Likelihood Model.

1.5 Applicant Attraction

During the early stages of recruitment, it is well documented that job applicants typically lack sufficient information about the position being considered, and that this makes them less inclined to accept job offers (Barber, 1998). A number of studies have demonstrated that providing more job and organizational information increases applicant attraction (Breaugh, 2013). Further, a recent study by Cromheecke et al (2013) found that the use of a novel and unusual recruitment method (e.g. postcards) was associated with a higher applicant pool quantity and quality. These findings corroborate past findings by Cable (2007) and Barber and Roeling (1993). These authors hypothesize that unusual recruitment mediums benefit from increased attention paid by job seekers. Research from the social cognition literature also lends support to this thesis. Smith and Collins (2009) argue that information relevant for a situation but inconsistent with previous heuristics receive more attention. A Gamified recruitment process, such as a simulation, may be made to contain an abundance of organizational/ job information. The Gamified recruitment process can then be conceptualized as a catalyst for the dissemination of organizational information. Moreover, Gamification can work to influence attitudes through both direct and indirect ways. Signaling theory asserts that when job seekers encounter ambiguous or incomplete information, they use the information they possess as available signals about the job and organizational attributes (Spence, 1973). For instance, an organization that employs the use of Gamification in its recruitment process may lead individuals to infer that the organization is technologically advanced, trendy and innovative.

Research question 2: A Gamified recruitment process may work to influence attitudes through changing belief and affect through signalling of organizational attributes.

Another advantage of a Gamified recruitment process is its ability to engage a wide audience through the use of proper game design. That is, drawing from the psychology literature, the Theory of Planned Behavior (TPB) asserts that human behavior is guided by three considerations: behavioral beliefs, normative beliefs and control beliefs (Ajzen, 1991). Behavioral beliefs are concerned with whether the individual perceives the consequences of a behavior to be either positive or negative. Normative beliefs pertain to the beliefs of others, whether the individual's social group would approve or disapprove of their actions. Lastly, control beliefs describe the individual's perceived control over their behavior, the perceived ease or difficulty of performing the specified behavior. Together, these beliefs influence behavioral intentions, which are an antecedent and predictor of actual behaviors. Relating TPB back to game design, if an individual perceives that engaging in a certain behavior will produce a positive event (having fun), that their social group also approves of their engagement with the game (social media feedback) and that they feel a sense of mastery over the game elements (control beliefs), the behavior of seeking out and engaging (playing) with the Gamified process is more likely to occur. Further, Gamification processes are inextricably linked to social media. The nature of games (they are fun) enables their fluidity and propels them across social media outlets such as Facebook, LinkedIn, Twitter and etc. The potential for Gamified recruitment applications to reach a wide audience is highly instrumental for organizations. This may be the defining factor of a Gamified recruitment process. The ability to attract a wide audience to engage in the organizations Gamified recruitment process. This idea coincides with the optimal recruiting practise. Attracting the largest number of applicants and maximizing the applicant pool from which the organization can then select the most competitive applicants. We propose

that Gamification can be an engaging medium in which organizational information can be efficiently disseminated to a large audience and thus increase the organization's applicant pool. Gamification is also likely to be viewed as a novel or unusual recruiting process and therefore, more effective at initial attraction of applicants.

Hypothesis 5: A Gamified recruitment medium will be associated with a larger applicant pool than a traditional recruitment medium.

In sum, a gamified recruitment process offers a number of advantages over traditional recruitment practices. One of its biggest strengths is that it provides organizational and job information in a fun and engaging manner. Thus converting the weakness of a traditional recruitment process, and driving engagement with the recruitment material. This allows for an overall greater recruitment experience as candidates are able to spend less time perusing company websites while gaining compelling information about a company through gameplay. Although to date, only large companies have employed the use of gamified recruitment processes, as technology advances, development of such applications will become economically feasible. The results of this study will hopefully reveal the potential that gamification may have in future recruitment practices.

Chapter Two: Methods

2.1 Sample

The sample consisted of university students voluntarily recruited from the University of Calgary, Psychology department's Sona System website. A meta-analysis of research on recruiting processes and variables found that at the attraction stage of recruiting, real job seekers

responded no differently than student's asked to assume a job seeking role (Chapman et al, 2005). Thus, it was judged that a student sample would allow experimental control while tapping into processes that are very similar to how job seekers process information. The primary sample consisted of N=187 participants with their mean age= 21.2 (SD=3.72). As expected from the sample population, the gender composition were 71% female and 26% male. In terms of ethnicity, the majority of participants identified themselves as "Caucasian" (48.4%) followed by "Asian" (16.1%) and "South-East Asian" (10.9%). The majority of participants indicated "Psychology" as their majors (42.7%) followed by Biological sciences (12.0%) and Business (8.4%). In terms of work experience declared, M=4.3 years (SD= 3.42) with M=10.98 hours worked a week (SD=9.89). Four participants were removed due to insufficient data. Participants were compensated 1 credit toward their psychology course for participation.

2.2 Materials

      L'Oreal Website. The L'Oreal website was used as the traditional recruitment medium. Participants were asked to act and think as if they were seeking a job (Chapman et al, 2004). A hyperlink was provided to the website and participants were given a total of 30 minutes to free-browse the site for recruitment information (http://www.loreal.ca/en/default.aspx). Cober et al (2003) and Gregory et al (2013) found that within online recruitment mediums, navigational ease and abundance of job related content were highly related to organizational attraction. These metrics were collected and used to compare and to control for the two websites used in the current experiment. Ease of use for the L'Oreal website, M=5.97 (SD=.81) and Content usefulness, M=5.76 (SD=.92).

      L'Oreal Gamified Medium. L'Oreal "Reveal" is a gamified recruitment medium

developed by L'Oreal for the purpose of recruiting students and recent graduates. Players take on the role of a trainee who is introduced to various departments within the company. During the game, players learn about the company and the various job positions available. Simultaneously, players are presented with real business scenarios in which they must make a decision. These business cases can be likened to company based aptitude tests. Personalized feedback is provided to players on whether they fit the job role their interested in, and which job role may be more suitable for their skill. As the game progresses, players accumulate points which they may use for job application purposes. Ease of Use for the L'Oreal gamified medium, $M= 4.29$ ($SD= 1.80$). Content usefulness, $M= 4.38$ ($SD= 1.67$).

Maersk Website. The Maersk recruitment website was also used as a traditional recruitment medium. Ease of use for the Maersk website, $M=5.92$ ($SD=.92$). Content usefulness, $M=5.84$ ($SD=.99$).

Maersk Gamified Medium. The Maersk, "Quest for Oil" game introduces players into the operations of the oil and gas industry. Players control an exploration vessel which is used to locate oil in the sea. Participants are then required to build a drilling rig while consulting with in-game experts in the oil and gas industry. Once an oil rig is successfully producing oil, players begin earning money which they can then use to further explore the sea for more oil. This game pits players against a computer explorer and awards victory to the first player that reaches 1 million dollars. Similar to the L'Oreal game, Quest for Oil provides players with an opportunity to experience various job positions in the oil and gas industry. The game simulates the duties of various jobs within the industry, such as, geo-engineers, drill operators and management. Game scores are also used during the job application process at Maersk. Ease of use for the Maersk gamified medium, $M= 4.32$ ($SD= 1.80$). Content usefulness, $M= 4.44$ ($SD= 1.71$).

2.3 Procedures

　　Participants registered for the study through the University of Calgary's online Psychology pool. Participants were randomly assigned to four conditions (refer to Appendix B: 6.3). To summarize, condition 1 presented participants with the Maersk Website followed by the L'Oreal game at time 2. Condition 2, the L'Oreal website followed by Maersk's game. Condition 3, L'Oreal game then L'Oreal website and finally, condition 4, Maersk website followed by Maersk game. Within each condition, participants were randomly assigned the order of media presentation. For example, in condition 1, half the participants were presented the Maersk website first followed by the L'Oreal game. While the other half were presented with the L'Oreal game followed by the Maersk game. The counterbalancing of media presentation reduces the chances of order effects. Further, within one session, two different conditions were run in unison. The conditions were run in parallel based on time of day. Folkard, Monk, Bradbury and Rosenthall (1977) found that task performance varied depending on the time of day. They attributed these effects to level of arousal deteriorating over time and fatigue. Delicate planning was used to minimize time of day effects such that all conditions were run at similar times.

　　The experiment was conducted in a large computer lab that contained 40 cubicles and computers. A maximum of 10 participants were allowed per session. Each participant sat at their own cubicle and were separated with a one space cubicle between each participant. To prevent sounds from one participant's game from being overheard by other participants, each participant was provided with headphones for the entirety of the experiment. Prior to the beginning of the experiment, the researcher read procedural instructions aloud. Written instructions were also provided to each participant in their cubicles. Participants were asked to act and think as though

they were looking for a job (Barber & Roehling, 1993). In a meta-analysis by Chapman et al (2005) recruiting studies examining early attraction to organizations using students or actual job seekers found similar results thereby instilling confidence that early attraction simulations with student's yields useful and generalizable results. Following the instructions, the researcher provided a website link to begin the survey.

The survey contained three segments to capture the longitudinal aspect of the experimental design. The survey began with pre-attitudinal questions about each of the target companies, demographic questions and questions regarding their familiarity with both Maersk and L'Oreal (see appendix A). This survey was used to establish a base-line of attitudes towards the companies used in the experiment. A total of 96 items were used to capture initial attitudes towards the companies. When the participants finished answering the survey, they were presented with a message that asked them to email the researcher to notify them of survey completion. This step was crucial to the experimental design as it allowed the researcher to measure the amount of time spent perusing the recruitment materials. Once the researcher had received emails from all the participants in the session, he emailed the participants a link containing the recruitment material (material was dictated by the condition the participants were in). Within the instructions provided at the onset of the experiment, the participants were notified that they may terminate viewing of recruitment materials at any time they choose. The participants understood that they had a maximum of 30 minutes to view recruitment materials, but were not required to use the total time of 30 minutes. This step was implemented to measure the length of engagement with recruitment materials while allowing the experience to be more natural and less forced than requiring all applicants to spend 30 minutes looking at a website. When participants chose to finish viewing recruitment materials, they were asked to email the

researcher their participant ID. The researcher then recorded the end time for each participant. In order to keep the experiment at the same length of time for each participant the participants were instructed to browse the internet at their leisure for any of the remainder of the allotted 30 minutes. Steps were taken to ensure that participants could not browse the website of the companies that were not used in their condition. When all the participants had concluded viewing of the materials and the researcher had received all the confirmation emails, a password was sent out that enabled the participants to continue with the third part of the survey.

The procedures for the third part of the study were similar to that of the second part. However a different recruitment medium and/or company target was presented. Participants were given a total of 30 minutes to view the second set of recruitment materials and allowed to end the task on their own volition. At the conclusion of the study, participants were randomly selected to answer qualitative questions about how they felt about the two recruitment mediums. Answers were recorded and are reported in the discussion section.

In order to provide a behavioural indicator of recruiting efficacy, participants were sent emails that contained a link to view either L'Oreal's or Maersk's recruitment website approximately four weeks after the conclusion of the study. The companies presented to the participants were dependent on the condition they were previously in. For example, for those in condition 1a, participants received separate e-mails with the link for both Maersk and L'Oreal. The emails linked participants to a mock website created for the purpose of this study. The websites contained a debriefing message and a link to the real recruitment websites for the respective companies. These websites were created to track the number of participants who would show interest in pursuing more information after viewing the recruitment materials during the experiment.

2.4 Measures

All measures were combined to form a questionnaire of 287 items. The entire questionnaire was based on self-report and required approximately 30 minutes to complete.

Control Variables. Several control variables that have been shown to be related to applicant attraction on the basis of prior recruitment research were incorporated (Cable & Judge, 1996). Organizational familiarity, attractiveness of the respective industry, prior attitudes toward the organization, and organizational image will be controlled in this study. Familiarity with the organization was assessed with a single item adapted from Gregory et al (2013), "In general, how familiar are you with this organization?" using a 1= not at all familiar to 7= very familiar scale. Similarly, attractiveness of the industry was assessed as responses to "In general, how would you rate the attractiveness of the industry of this organization?" using 1 = very unattractive to 7= very attractive. Lastly, organizational image was assessed using five items adapted from Turban & Greening, 1997), using the common stem: "How does this organization compare to other organizations you know on the following" with five dimensions- concern for the environment, high ethical standards, overall public image, community involvement and product quality.

A number of demographic variables were included due to their potential influence on recruitment outcomes. In particular, gender, work experience and whether they were currently seeking employment were variables of interest. It was hypothesized that gender would have an effect on organizational attractiveness as companies used in the study may be more favorable to certain genders.

L'Oreal Affective Scale. The 11 item L'Oreal Affective scale was developed according to suggestions by Zajonc (1984). Sample items include: "I feel that L'Oreal is a good place to

work", "I feel that L'Oreal is a trendy company", "I feel that L'Oreal is a company with high integrity" and "I feel that L'Oreal is an equitable employer ($\propto$= .89)

L'Oreal Belief Scale. The 5 item L'Oreal Belief scale was developed according to suggestions by Zajonc (1984). Sample items include: "L'Oreal is a dominant organization", "L'Oreal offers challenging jobs" and "L'Oreal provides equal employment opportunity for all" ($\propto$= .69).

L'Oreal Attitude Scale. Attitudes are composed of three components, beliefs (cognitive), feelings (affect) and behaviors (Petty & Cacioppo, 1984). Initially, the current study sought to examine the differential effects of affect and beliefs. However, results of correlations (r= 0.81, p<0.001) between affect and belief led to the aggregation of both variables into an attitude scale. Thus, the company attitude scale was created from a total of 19 items ($\propto$= .91).

Maersk Affective Scale. The 11 item Maersk affective scale was identical to the L'Oreal Affective Scale with the exceptions of substituting the company "L'Oreal" with "Maersk in the question stem. Sample items include: "I feel that Maersk is a good place to work", "I feel that Maersk is a trendy company", "I feel that Maersk is a company with high integrity" and "I feel that Maersk is an equitable employer ($\propto$= .87).

Maersk Belief Scale. The 5 item Maersk belief scale was identical to the L'Oreal belief Scale with the exceptions of substituting the company "L'Oreal" with "Maersk in the question stem. Sample items include: "Maersk is a dominant organization", "Maersk offers challenging jobs" and "Maersk provides equal employment opportunity for all" ($\propto$= .75).

Maersk Attitude Scale. The Maersk Affective and belief scales were combined to create the Maersk Attitude scale ($\propto$= .89).

Industry Affective, Belief and Attitude scale. These scales were similar to the company affective and belief scales with the exceptions of substituting the words "Cosmetic Industry" or "Oil and Gas industry". The reliabilities for the cosmetic affective scale (α= .88), cosmetic belief (α= .79), cosmetic industry attitude (α= .89), oil and gas affective (α= .89), oil and gas belief (α= .78) and oil and gas industry attitude (α= .90).

Usability and Aesthetics. Website ease of use was assessed with Williamson et al.'s (2003) four-item measure of ease of use. This scale uses a seven-point Likert-type scale ranging from 1= strongly disagree to 7= strongly agree. Sample items include: "The website was clear and understandable", "The website was easy to use" and The website did not require a lot of mental effort to navigate". The scale was adapted to measure usability and aesthetics for both companies and their respective games. This was done by substituting the word "website" with the associated companies' name of recruitment medium. For example: "L'Oreal's website was clear and understandable" or "Maersk's game was easy to use". The reliability for the scale was (α= .92).

Content Usefulness. The content usefulness scale was developed by Cober et al (2003). This scale uses a seven-point Likert-type scale ranging from 1= strongly disagree to 7= strongly agree. Sample items include "The website provided an adequate level of information to evaluate the organization" and "The website provided detailed information about the organization". The reliability for the scale was (α= .90).

Amount of Job Information. Perceptions of amount of job information within the recruitment mediums (website or game), were measured with a three item measure adapted from Allen et al's (2007) scale of job information. The scale uses a Likert-type scale ranging from 1= not much at all to 7= a very great amount. Sample items include" How much employment or job

opportunity-related information did the website provide?", "Compared with the amount of information you would need before contacting the organization?" The reliability for the scale was ($\propto$= .93).

Amount of Organizational Information. Perceptions of amount of organizational information contained in the recruitment mediums was measured with Allen et al's (2007) scale of organizational information. The scale uses a Likert-type scale ranging from 1= not much at all to 7= a very great amount. Sample items include "How much information about the organization did the website provide?", "Compared with other websites you have visited?" The reliability for the scale was ($\propto$= .93).

Attitudes toward the organization & industry. Participants' attitudes toward the organization was assessed with Allen et al.'s (2004) five-item measure of attitudes toward the organization which was adapted from a survey of affective responses developed by Fishbein and Ajzen (1975; a=.94). This scale used a Likert-type scale ranging from 1= very negative to 7= very positive. Sample items include: "What is your overall attitude toward this organization?" and "In your judgment, how does this organization compare with other organizations of the same type and size?" The reliability for the scale was ($\propto$= .91).

Organizational attraction. Highhouse, Lievens and Sinar (2003) five-item measure of attraction to the organization was used. This scale uses a seven-point response scale (1=strongly disagree – 7 strongly agree). Sample items include: "I would not be interested in this company except as a last resort (Reverse coded)" and "I am interested in learning more about this company". The reliability for the scale was ($\propto$= .96).

Intentions to pursue employment. Intentions to pursue employment at the respective organizations was measured with a 5-item scale adapted from Fishbein & Ajzen (1975). Items

include "How likely are you to search the internet to obtain information about jobs with this organization?", "How likely are you to consider joining this organization?", "How likely are you to submit an application to this organization?" The reliability for the scale was ($\propto$= .94).

   Initial Affective Reactions. Affective reactions were measured using the 20-item Positive Affect-Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988). This scale measures a person's current mood and emotional response to a stimulus, which is, for this study, the organization's recruitment webpage or gamification application. This scale includes items that measure interest, excitement, enthusiasm as a measure of positive affect. Negative affect items include, distressed, upset, irritable and hostility ($\propto$= .86).

Chapter Three: Results

3.1 Preliminary Analyses

If two out of the three time points of data were missing, a listwise deletion of the participant's data was performed. A total of five cases met this criteria. Further, an outlier analysis was conducted using Mahalanobis distances. Mahalanobis distances determines the distance between a point and its multidimensional mean of the input variables, with larger distances indicating a possible influential case. All outcome measures were used as input variables, resulting in a total of 14 variables input and 13 degrees of freedom. The analysis determined that there were three multivariate outliers present in the data. These cases were removed from the dataset and analyses were replicated with no significant changes. The outliers were included in the final dataset as they were determined not to be influential cases.

A multivariate analysis of variance was used to examine order effects on the pre-attitudinal measures. Using Wilk's lambda, there was not a significant effect of order on any of the pre-attitudinal measures, $w = .99$, $F(23,255) = 0.15$, $p > .05$.

3.2 Analysis Procedure

General estimated equations were used as the major analytic method to examine the effectiveness between a traditional recruitment and a gamified recruitment medium. The current study employed a 2(company: L'Oreal; Maersk) x 2 (medium: website, game) mixed design where participants were not fully crossed due to time constraints and potential fatigue effects (90 minutes were required for two conditions). A total of 4 recruitment mediums and 4 conditions were used in the study. Conditions differed based on the recruitment medium used, such that a single participant would only be exposed to two out of the four recruitment conditions in the study. Consequently, data are dependent, repeated and longitudinal. Using repeated

measures analysis of covariance would not be appropriate with this dataset as it assumes compound symmetry in the covariance matrix. Further, repeated measures ANOVA cannot handle time-dependent covariates or predictors measured over time. They do not provide parameter estimates for these circumstances and are not robust to missing data (Twisk, 2003).

General estimating equations (GEE) were first introduced by Liang and Zeger (1986) and is an extension of the General Linear Model (GLM). According to Hanley, Negassa, Edwardes & Forrester (2003), the GEE method is being increasingly used to analyze longitudinal and other correlated data. GEE provides a semi-parametric approach to longitudinal analysis of a categorical or continuous measurement. Further, instead of attempting to model the within-subject covariance structure, GEE treats it as a nuisance variable and models the mean response instead (Diggle, Liang & Zeger, 1994). In other words, estimates of mean parameters remain consistent even if the correlation or the covariance structure is mis-specified. Further, GEE models are robust to missing data and will proceed to estimate a model even with missing observations (Simpson, Varra, Stappenbeck, Moore, 2012)

An alternative method for modeling the data would be a multilevel approach with a nested design. However, for the purpose of the questions of interest (group level effects; time), the use of multilevel modeling diminishes the statistical power due to insufficient group data. However, GEE offers greater parsimony for the current analyses and was chosen as the optimal method for analyses.

Table 1.
Means, Standard Deviations, and Internal Consistency reliabilities for Order 1 variables

Variables	N	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	194	21.2	3.86	-												
2. Gender	192	-	-	0.00	-											
3. Company Attitude T0	193	4.26	0.64	-.12	.05	(.91)										
4. Industry Attitude T0	193	4.70	0.91	-.18*	.12	.55**	(.90)									
5. Company Familiarity	193	6.73	1.84	-.10	.02	.32**	-.09	-								
6. Industry Familiarity	186	4.25	1.63	-.13	.17*	.33**	.29**	.25**	-							
7. Positive PANAS T0	193	2.37	0.80	.12	-.17*	.15*	.06	-.12	.07	(.86)						
8. Negative PANAS T0	193	1.36	0.53	.06	-.02	.05	.06	-.09	-.02	.25**	(.88)					
9. Positive PANAS T2	187	2.26	0.97	.04	-.13	.33**	.18*	.08	.05	.63**	.22**	(.93)				
10. Negative PANAS T2	187	1.36	0.56	.10	-.11	.04	.05	-.14	-.05	.23**	.76**	.14	(.92)			
11. Game Experience	177	2.97	1.95	-.01	-.63**	.11	-.08	.13	.02	.14	.08	.19*	.09	(.85)		
12. Ease of Use	187	4.71	1.77	-.17*	.04	.13	.12	.12	.19*	.07	-.03	.16*	-.10	.02	(.88)	
13. Content Usefulness	186	4.76	1.65	-.18*	.01	.24**	.29**	.18*	.19*	.14	.05	.20**	-.04	.00	.61**	(.80)

Note. Cronbach Alphas appear on the diagonal in parentheses. Missing values are 1 item scales.
[a] Male =1, Female = 2.
** $p < 0.01$ * $p < 0.05$

Table 1 Continued..

Variables	N	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
14. Amount of Job Information	187	3.07	1.17	-.01	.10	.23**	.30**	.14	.16*	.05	.08	.13	.02	.03	.48**
15. Amount of Organizational Information	187	3.16	1.16	-.05	.04	.25**	.31**	.20**	.15*	.09	.14	.15*	.09	.02	.50**
16. Attitude Toward Organization	187	3.63	0.91	-.14	.09	.47**	.53**	.17*	.29**	.14	.08	.33**	-.04	.03	.47**
17. Seek Employer Information	187			-.05	.07	.42**	.46**	.12	.30**	.08	.22**	.30**	.15*	.06	.26**
18. Organizational Attractiveness	187	3.81	1.60	-.09	.04	.47**	.55**	.17*	.30**	.18*	.14	.37**	.08	.06	.31**
19. Willingness to Recommend	186	3.42	0.77	.02	.08	.15*	.22**	.00	.16*	.17*	.04	.26**	.00	-.02	.29**
20. Organizational Image	187	4.62	1.26	-.13	.10	.37**	.45**	.25**	.20**	.10	.08	.24**	.02	.07	.40**
21. Company Attitude T2	182	5.06	0.95	-.15*	.13	.54**	.58**	.24**	.26**	.14	.01	.37**	-.06	.01	.48**
22. Industry Attitude T2	182	4.99	0.9	-.19*	.13	.50**	.76**	.10	.29**	.12	.10	.31**	.01	-.05	.31**
23. Company	187	-	-	.10	.03	-.24**	.19**	-.90**	-.19**	.14	.10	-.13	.16*	-.17	-.13
24. Medium	187	-	-	.13	-.04	-.02	-.13	.05	-.08	.00	-.11	.06	-.07	.12	-.60**

Note. Cronbach Alphas appear on the diagonal in parentheses. Missing values are 1 item scales.

[a] Male =1, Female = 2.

[b] L'Oreal =1, Maersk = 2.

[c] Website =1, Game = 2.

**$p < 0.01$ *$p < 0.05$

Variables	N	M	SD	13	14	15	16	17	18	19	20	21	22	23	24
14. Amount of Job Information	187	3.07	1.17	.71**	(.88)										
15. Amount of Organizational Information	187	3.16	1.16	.67**	.81**	(.90)									
16. Attitude Toward Organization	187	3.63	0.91	.60**	.62**	.67**	(.90)								
17. Seek Employer Information	187			.37**	.41**	.38**	.59**	(.93)							
18. Organizational Attractiveness	187	3.81	1.60	.47**	.49**	.52**	.70**	.76**	(.94)						
19. Willingness to Recommend	186	3.42	0.77	.36**	.43**	.42**	.51**	.29**	.45**	(.72)					
20. Organizational Image	187	4.62	1.26	.54**	.51**	.64**	.72**	.47**	.61**	.39**	(.89)				
21. Company Attitude T2	182	5.06	0.95	.59**	.59**	.63**	.81**	.56**	.71**	.46**	.74**	(.90)			
22. Industry Attitude T2	182	4.99	0.9	.45**	.45**	.49**	.70**	.56**	.67**	.36**	.65**	.84**	(.88)		
23. Company	187	-	-	-.11	-.06	-.13	-.13	-.11	-.15*	.04	-.20**	-.21**	-.06	-	
24. Medium	187	-	-	-.53**	-.44**	-.49**	-.33**	-.16*	-.18*	-.14	-.33**	-.27**	-.17*	-.10	-

Note. Cronbach Alphas appear on the diagonal in parentheses. Missing values are 1 item scales.

[a] Male =1, Female = 2.

[b] L'Oreal =1, Maersk = 2.

[c] Website =1, Game = 2.

**$p < 0.01$ *$p < 0.05$

3.3 Results

In general the results are demonstrated in Figure 2. Figure 2 shows that both gamified recruiting and traditional recruiting websites were effective in improving initial attitudes toward the organizations and applicant attraction. However, as will be shown next, the hypotheses predicting that gamified processes would be superior to traditional processes were not supported.
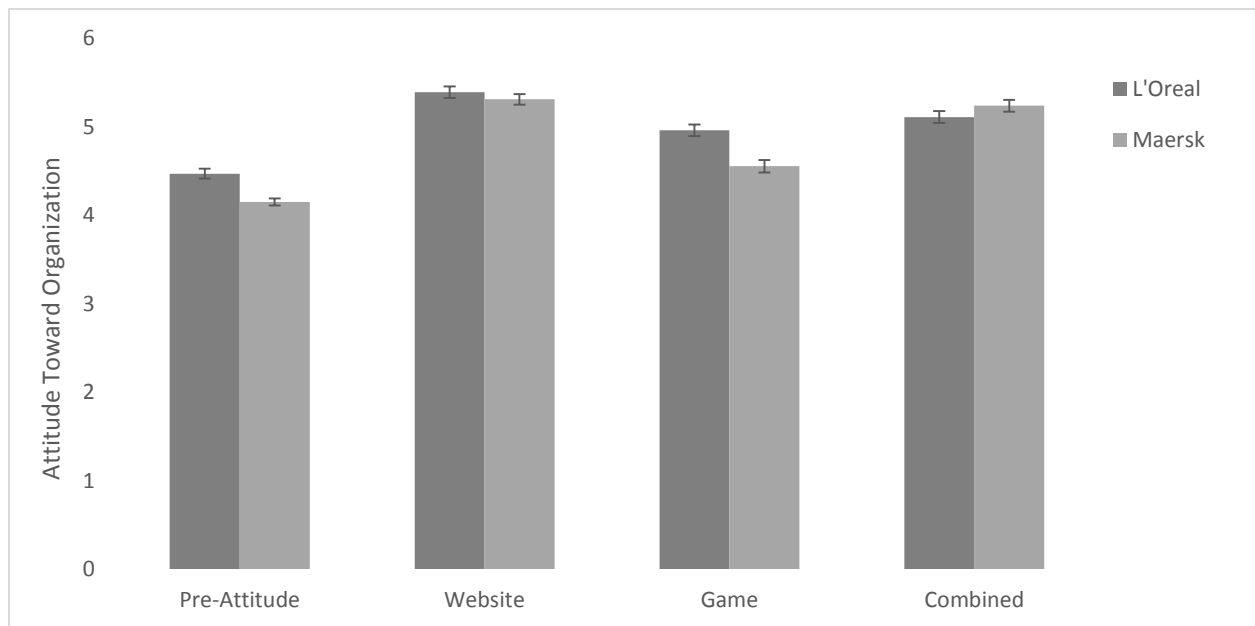

Figure 2. Attitudes toward companies after exposure to recruitment mediums. Standard errors are represented in the figure by the error bars attached to each column.

3.3.1 Hypothesis 1.

The hypothesis that a gamified recruitment medium will enhance organizational attractiveness perceived by potential applicants more than a traditional recruitment medium did not receive support. Results of the general estimated equations found that company attractiveness following exposure to websites (*M*=4.18, *SE*=0.34) was rated higher than after exposure to the gamified

recruitment medium (M=3.45, SE=.35) when pre-company attitude was used as a covariate, χ=

74.12, p<.001. Refer to Table 2 for further information.

Table 2.
Summary of General Estimating Equations on Organizational Attractiveness

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Company Attitude T0	1.072	.125	(.828, 1.316)	74.12	<.001
2. Medium	.738	.108	(.526, .950)	46.43	<.001

Note. Company attitudeT0 was entered as a covariate.
[a] Medium 1= website, 2=game.

3.3.2 Hypothesis 2.

A mediation analyses was conducted to examine whether attitudes developed towards the

gamified recruitment process will positively influence attitudes towards the organization. The

two attitudes in question were the ease of use and content usefulness variables. General

estimating equations were used to obtain regression weights for the mediation model. A Sobel

test was conducted to determine mediation with pre-company attitudes as a covariate. The Sobel

test was performed with procedures recommended by Preacher & Hayes, (2008; 2004). First, the

independent variable (Medium; B= 2.47, SE= 0.12, p=0.002) was entered as a factor with the

mediator as the dependent variable (Ease of Use). Second, the independent variable (Medium)

and mediator (Ease of Use; B= 0.25, SE= 0.035, p=0<.001) were entered as covariates with the

dependent variable (Attitude toward organization). Results support the hypothesis that ease of

use fully mediates the relationship between recruitment medium and attitude toward the

organization, z= 2.75, SE= 0.23, p<.001.

Table 3.
Summary of General Estimating Equations on Ease of use

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Medium	2.47	0.120	(2.23, 2.70)	421.49	<.001

Note.
[a] Medium 1= website, 2=game.

Table 4.
Summary of General Estimating Equations on Attitude toward organization T2

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Ease Of Use	.251	.0347	(.183, .319)	52.21	<.001
2. Medium	-.99	.092	(-.279, .081)	1.17	.28

Note. Ease of use was entered as a covariate.
[a] Medium 1= website, 2=game.

Similarly, content usefulness was also found as a full mediator between medium and attitude toward organization. Where the medium (*B*= 2.10, *SE*= 0.13, *p*<0.001) and attitude towards organization was found to be mediated by content usefulness (*B*= 0.29, *SE*= .03, *p*<0.001); as determined by the Sobel test(z=8.04, *SE*= 0.08, *p*<0.001).

Table 5.
Summary of General Estimating Equations on Content usefulness

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Company Attitude T0	.442	.0955	(.255, .629)	21.46	<.001
2. Medium	2.10	.134	(1.83, 2.36)	243.62	<.001

Note. Pre-company attitude T0 was entered as a covariate.
[a] Medium 1= website, 2=game.

Table 6.
Summary of General Estimating Equations on Attitude toward organization T2

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Content Usefulness	.291	.0310	(.230, .351)	88.02	<.001
2. Company Attitude T0	.384	.0642	(.258, .510)	35.76	<.001
3. Medium	-.120	.0793	(-.275, .035)	2.29	.130

Note. Content usefulness and Company attitude T0 were entered as covarites.
[a] Medium 1= website, 2=game.

3.3.3 Hypothesis 3a, b.

Originally, hypothesis 3 aimed to answer two separate but related questions: Whether a gamified recruitment medium would be more effective in changing the affective *and* belief components of an attitude than a traditional recruitment medium. However, upon analysis of the data, the two attitude components were highly correlated $r=.89$, $p<0.001$. Accordingly, a decision was made to collapse and aggregate the two components into an attitude scale. Pre-company attitude was used as a covariate for testing this hypothesis. Support was not found for the hypothesis that a gamified recruitment medium ($M= 4.76$, $SD= 0.194$) was more effective in changing the attitude towards organizations than a traditional recruitment medium ($M=5.36$, $SE= 0.193$), $\chi= 81.62$, $p<.001$.

Table 7.
Summary of General Estimating Equations on Company Attitude T2

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Company Attitude T0	.690	.072	(0.548, 0.831)	91.08	<.001
2. Medium	.598	.0662	(0.548, 0.831)	81.62	<.001

Note. Company Attitude T0 was entered as a covariate.
[a] Medium 1= website, 2=game.

3.3.4 Hypothesis 4.

To determine whether a gamified recruitment medium would be more effective for building

brand awareness with less recognized organizations than a traditional recruitment medium, the

data were submitted to test for a moderation. Brand awareness was construed as a measure of

brand familiarity. General estimated equations were used to obtain regression coefficients to

examine the moderating effect of familiarity and pre-company attitudes on post-company

attitudes. Pre-company attitudes and company familiarity were entered first, followed by their

interaction term. No support was found for the moderating effect of company familiarity on pre-

company attitude (B= -0.02, SE= .03, p=0.94).

Table 8.
Summary of General estimating Equations on Company Attitude T2

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Company Attitude T0	.721	.145	(0.79, 3.15)	24.69	<0.001
2. Company Familiarity	.012	.131	(-.244, .269)	.01	.925
3. Company Familiarity x Pre-company Attitude T0	-.002	.0303	(-.062, .057)	.01	.936

3.3.5 Hypothesis 5.

Lastly, this hypothesis tested whether a gamified recruitment medium would be more effective in

generating a larger applicant pool than a traditional recruitment medium. Medium was entered as

the independent variable for both models, however, one model tested the outcome of intentions

to seek employment while the other, willingness to recommend. These outcomes are both

considered applicant attraction outcomes in the recruitment literature (Barber, 1998). No support

was found for the hypothesis that a gamified medium (*M*=1.93, *SE*=0.07) would be more

effective than a traditional recruitment website (*M*=2.31, *SE*= 0.08), *b*= 0.38, *SE*= .069, *p*<.001

for intentions to seek employment.

Table 9.
Summary of General Estimating Equations on Intentions to seek employment

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Medium	.378	.0694	(.242, .514)	29.609	<0.001

Note. Medium 1= website, 2=game.

Similar results were found with the outcome of willingness to recommend the

organization, the game (*M*=2.64, *SE*= 0.09) was less effective than the website (*M*=3.27,

SE=.09), *b*=0.63, *SE*= .089, *p*<0.001.

Table 10.
Summary of General Estimating Equations on Willingness to Recommend

	B	Std.Error	95% CI (lower, upper)	Wald Chi-Square	p
1. Medium	.627	.0893	(.452, .802)	49.213	<0.001

Note. Medium 1= website, 2=game.

3.4 Supplementary Analyses.

As this study represents the first empirical study to look at the use of games for

recruiting, additional analyses were conducted to examine data further to identify other potential

avenues for future investigation.

3.4.1 Effects of gender and company on pre-company attitudes.

A 2 (Gender; Male, Female) x 2 (Company; L'Oreal, Maersk) between-subjects factorial

analysis of Variance was conducted to determine whether there were differences in pre-company

attitudes by gender and company. Results of this analysis indicated a significant main effect for company, such that pre-company attitudes for L'Oreal (M= 4.37 , SD= 0.07) were higher than Maersk (M=4.11, SD= 0.08), $F(1,188)$= 6.37, MSE= 2.53, p<0.05. Conversely, the main effect of gender (Male; M= 4.20, SE= 0.09; Female, M= 4.28, SE= 0.05) on pre-company attitudes was not significant, $F(1,188)$= 0.54, MSE= 0.21, p= 0.47. Further, contrary to expectations, there was no significant interaction between gender and company, $F(1, 188)$= 0.99, MSE= 0.39, p=0.32. This was somewhat surprising as one company was in a traditionally feminine industry (cosmetics) and the other in a traditionally masculine industry (Oil and Gas).

3.4.2 Amount of job information and organizational attraction

Breaugh (2014) found that the amount of organizational information contained in a recruitment medium predicted organizational attraction. A Sobel test was used to determine whether the relationship between medium and organizational attraction was mediated by organizational information. The website medium (M=3.55, SD=0.89) was perceived to contain more job information than the game medium (M=2.56, SD= 1.12), $F(1,185)$= 45.20, p= <.001. The Sobel test confirmed that organizational attraction engendered by the recruitment medium was fully mediated by the perceived amount of job information, z= 5.76, SE= 0.11, p<0.001.

3.4.3 *Path models: possible mechanisms for recruitment*

In order to further understand the relationship between a gamified recruitment medium and its outcomes, a series of mediation analyses were completed using the PROCESS ad-on to SPSS (Hayes, 2012). To do this, only data from the gamified recruitment conditions were used. This step was done to reduce sample issues arising from the fact that some measures were used

in the gamified condition that were not in the website condition. The following are results from a

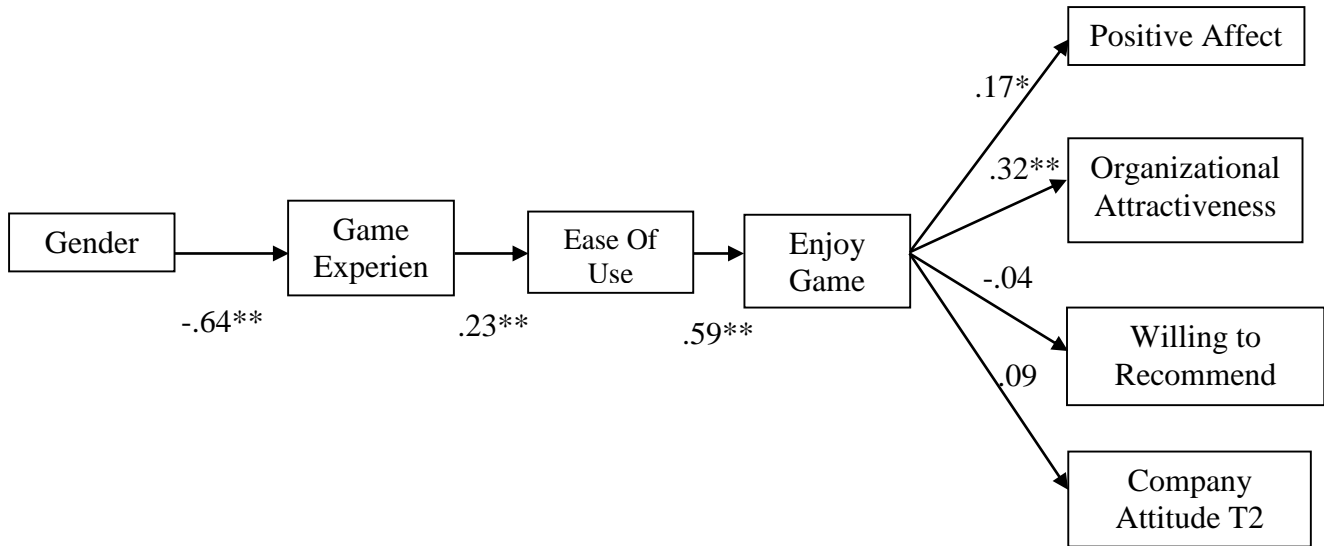series of mediation analyses, see figure 3 for a summary.

Figure 3. Possible mechanism of a gamified recruitment medium. Numbers shown are regression

coefficients obtained by running single mediation between two variables. Gender is coded as 1=

male, 2= female.

  First, it was determined that there was a significant indirect effect of gender on ease of

use through game experience, b= -.66, BCa CI [-1.24, -.158]. This represents a moderate effect

size, k^2 = -.19, 95% BCa CI [-.333, -.046]. Males were far more likely to have game experience

than females and game experience was correlated with perceived ease of use. Next, it was found

that the relationship between game experience and enjoyment of the game was fully mediated by

perceived ease of use, b= .010, BCa CI [.038, .178]. With an effect of, k^2 = .16, 95% BCa CI

[.062, .280]. The final four analyses examined enjoyment of the game as the mediator of the

relationship between ease of use and four recruitment outcomes. First, the relationship between

ease of use and company attitude at time 2 was found to be mediated by enjoyment of the game,

$b= .099$, BCa CI [.005, .211]. A moderate effect was found, $k^2= .16$, 95% BCa CI [.008, .332]. Second, enjoyment of the game mediated ease of use and organizational attractiveness, $b= .191$, BCa CI [.031, .382], a moderate effect was found, $k^2= .188$, 95% BCa CI [.027, .364]. Third, the relationship between ease of use and willing to recommend was found to be fully mediated by enjoyment of the game, as the indirect effects were non-significant, $b= -.027$, BCa CI [-.109, .0580]. Similarly, mediation between ease of use and company attitude at time 2 by enjoyment of the game was not supported, $b= .054$ BCa CI [-.060, .184]. In summary, Figure 2 shows that the relationship between recruiting medium and recruitment outcomes is a complex one. Enjoying the recruiting process was associated with several positive recruiting outcomes however, people with more gaming experience found the games easier to use and therefore enjoyed them more. Consequently, males in the sample reported greater gaming experience. This has implications for targeting games at either specific demographic groups (i.e, males) or toward more specific interest groups (gamers).

As a point of comparison, a number of correlations were completed using ease of use and the same outcomes as above. However, similar to the previous analyses, only data from the website medium were used in this correlation analyses. It was found that perceived ease of use was positively related to a number of recruitment outcomes, positive affect at time 2 ($r= .20$, $p<.001$), organizational attractiveness ($r=.29$, $p<.001$), willingness to recommend ($r=.26$, $p<.001$) and company attitude at time 2 ($r=.47$, $p<.001$).
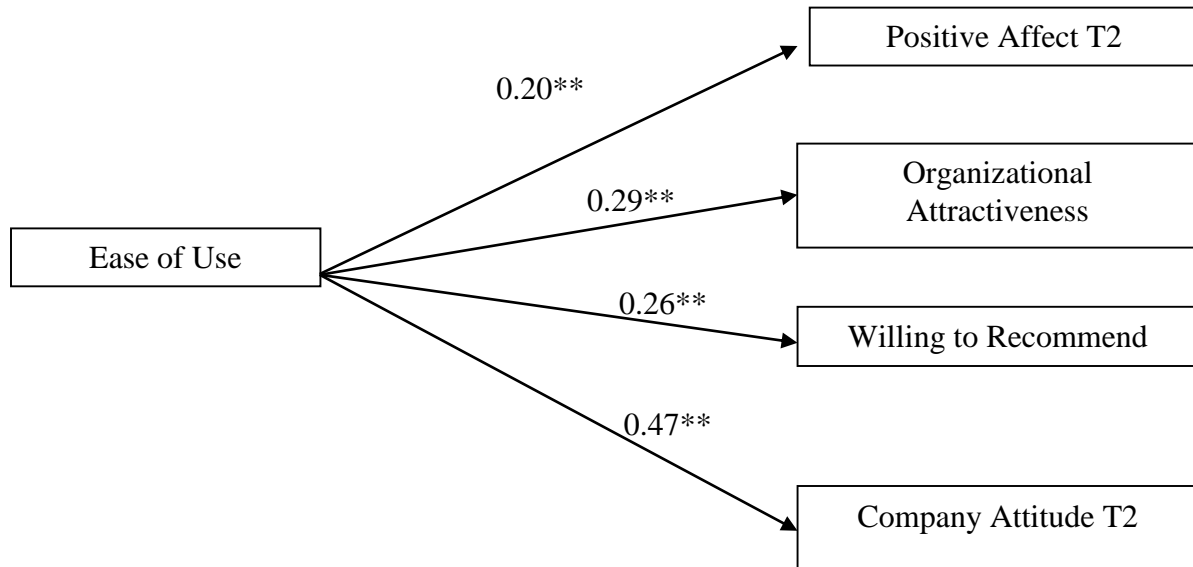
Figure 4. Correlation between ease of use and a number of recruitment outcomes. Only data that pertained to the website medium were used.

3.4.4 Behavioral Follow-up results

Approximately four weeks after the conclusion of the study, participants were emailed from a fake recruitment account (Please see procedures, Appendix B: 6.2) and invited to follow a link to obtain further organizational information about each of the target companies. This was used as a behavioral measure of employment interest. Unfortunately, less than half the participants provided consent to be contacted after the study. 126 emails were sent to a total sample of 192 participants in the study. A chi-Sqaure analysis was conducted to determine whether either recruitment medium had a higher response rate. There was a non-significant relationship between the type of medium and number of recruitment website visits, χ^2 (1, n=53)= 0.17, p= .68.

Chapter Four: Discussion

The present study sought to further our understanding of the use of gamification for the purpose of employee recruitment. Results of these gamified recruitment processes are purportedly positive, although no empirical studies have been conducted to determine their efficacy. This thesis was designed to provide an objective and empirical analysis of the efficacy of gamified recruitment procedures. The findings of the present study provide a greater insight into the use of novel recruitment processes. Despite the fact that the hypotheses in the study were largely unsupported, the results of the current study provide suggestions towards improving a gamified recruitment processes.

4.1 Gamified medium and organizational attractiveness.

The present study found that web-based recruitment mediums (M=4.18, SE= 0.34) performed better than a gamified recruitment medium (M= 3.45, SE=0.35) based on organizational attractiveness ratings (hypothesis 1). These results corroborate findings from Cober et al (2003) and Gregory et al (2013) who found that within online recruitment mediums, navigational ease and abundance of job related content were highly related to organizational attraction (see figure 3). A one-way analysis of variance was conducted to examine the difference of perceived ease of use in the recruitment mediums. It was found that websites (M=5.76, SD= 0.96) were easier to use than the game medium (M=3.78, SD=1.58), F(1,186)=106.89, p<0.001. Supplementary analyses were undertaken to further explore the relationship between recruitment mediums and their effect on organizational attractiveness. Results of the Sobel test conclude that the amount of job information mediated the relationship between organizational attraction and recruitment mediums, z= 5.76, SE= 0.11, p<0.001. Further, the amount of job information was significantly higher in the website medium (M=3.55,

SD=0.89) than the game medium (*M*=2.56, *SD*= 1.12). Similarly, as Gregory et al (2013) highlights, the usefulness of the content in the recruitment medium is highly predictive of organizational attraction. An additional mediation was used to test the relationship found by Gregory et al (2013). Content usefulness was also found to mediate the relationship between recruitment medium and organizational attraction, *z*=5.97, *SE*= 0.123, *p*<0.001. Suggesting that recruitment mediums should be very careful to include abundant information that pertains to the organization and/or its jobs.

4.2 Improving recruitment outcomes.

Results from the present study suggest that traditional recruitment mediums are more effective in engendering positive attitudes and attraction towards organizations. The greatest predictor of organizational attractiveness was the ease of use of recruitment mediums (*r*= 0.31, *p*<0.001). Allen et al (2007) contends that recruitment websites provide potential applicants the opportunity to obtain a plethora of organizational and job information. However, if websites prove difficult to navigate, that same information becomes inaccessible. The navigational ease of a recruitment medium may act as a bottleneck to the amount of information contained in the medium. Following from the results of this study, the amount of job and organizational information was found to mediate organizational attraction. Comparing the traditional recruitment medium and gamified medium, ease of use was significantly higher for the traditional recruitment medium (*r*= .60, *p*<0.001). These results corroborate findings from Braddy, Meade & Kroustalis (2005) who found that ease of navigation on a company's recruitment website was positively related to organizational attractiveness. Further, Cober et al (2003) also found that usability perceptions were positively associated with inclinations to pursue jobs with the respective organization. Similarly, Sinar, Reynolds and Paquet (2003) found

that website speed and user-friendliness, constructs similar to ease of use, were moderately

related to job seekers' organizational image and attractiveness.

The results of the present study suggest that the most important variable in an online

recruitment medium may be the ease of use. A website or game that may be difficult to use or

comprehend may act as a bottleneck and dissuade users from further pursuing information.

However, although the hypotheses in this study were largely unsupported, examination of figure

2 demonstrates that both recruitment mediums were successful in changing participant's

attitudes. This effect, however, was stronger in the website condition than in the gamified

recruitment medium. The use of both recruitment mediums (games and website) augmented

company attitudes to levels similar to the website condition alone. A number of conclusions can

be drawn from this observation. First, the effectiveness of a recruitment medium may be

determined by its ease of use and the amount of organizational and job information available. As

stated before, ease of use may be the bottleneck to the amount of information obtained by users

(see figure 3). Second, although the results for this study did not support the presence of a

moderator effect by company familiarity on post company attitudes, Chapman et al (2006) found

a moderate relationship between the two variables. Figure 3 indicates that there may be a

familiarity effect on Maersk initial attitudes and Maersk post company attitudes. However, an

interaction between initial attitudes and company familiarity may not have surfaced in the

present study due to the lack of variability in the measurement of familiarity. There was a large

difference between Maersk (M= 1.19, SD= .75) and L'Oreal (M= 5.74, SD=1.30) familiarity.

However, this difference did not reflect pre-company attitudes where Maersk (M=4.15, SD=

.545) and L'Oreal (M= 4.47, SD= .75) were similar. According to Maio & Olson (1995),

ambivalent attitudes exist when an attitude has not yet been developed towards an object. Thus,

an unfamiliar company would most likely possess a neutral attitude regardless of how unfamiliar it is. Which may account for the reason that familiarity did not moderate the relationship between pre-company attitude and post-company attitudes.

4.3 Qualitative information

Qualitative interviews were conducted on random participants after the study session to gauge how the participants felt about an interactive recruitment medium ($N= 12$). Answers were unanimous amongst those interviewed. Participants enjoyed the gamified mediums but felt that the structure of the gamified medium did not allow them to explore organizational information that piqued their interest. In corroboration with their statements, enjoyment of the gamified medium was moderately correlated with positive affect (PANAS) at time 1 ($r= .27$) and subsequently at time 2 ($r= .33$), $p<0.001$. Further, referring to table 1, traditional recruitment mediums contained more useful content ($r=-.53$, $p<0.001$), amount of job information ($r=-.44$) and subsequently, organizational attraction was higher after exposure to the traditional recruitment medium ($r=-.18$, $p<.001$).

4.4 Possible mechanisms

A series of mediation analyses were conducted to examine the nature of a gamified recruitment medium and its effectiveness (refer to Figure 3). The results of the data indicate that males receive gamified recruitment mediums more favorably than females. This relationship is mediated by game experience which subsequently works through ease of use. That is, participants with greater game experience find a gamified medium easier to use. By extension, ease of use was positively related to enjoyment of the game. As hypothesized, enjoyment of the game was positively correlated with a number of recruitment outcomes such as organizational attractiveness, willing to recommend, positive affect (PANAS) and company attitude. Although

these results suggest that a gamified recruitment medium may be best targeted at males, the strongest predictor of organization outcomes was perceptions of ease of use. Moreover, perceptions of ease of use was moderately correlated with game experience. Thus, a gamified recruitment medium may be more effective for targeting applicants with game experience, and not necessarily a certain gender. Since the ease of use of recruitment medium was correlated with organizational attraction ($r= .31$, $p<0.001$) and enjoyment of the game was highly correlated with ease of use ($r= .52$, $p<0.001$), we can derive a number of suggestions to improve a gamified recruitment medium. A gamified recruitment medium must possess both qualities of being enjoyable and easy to use. A deficit of either characteristic may diminish the medium's effectiveness as a recruitment method.

4.5 Behavioral outcomes

A Chi-Sqaure analysis was used to determine whether the website medium or game medium was more successful at generating applicant interest approximately one month after the conclusion of the study. Results of the analysis found that there was no difference between the number of visits generated between the recruitment mediums, χ^2 (1, $n=53$)$= 0.17$, $p= .68$. However, out of the 126 emails sent, a total of 53 site visits were generated (42.1% response rate), 25 from the game and 28 from the website conditions. The high rate of responses between the two conditions was somewhat unexpected. As results from the study found that participants who engaged with the website recruitment medium had higher ratings of organizational attractiveness ($M= 4.00$, $SD= 1.52$) than the game medium ($M=3.44$, $SD= 1.55$), $F(1,186)= 6.24$, $p<0.05$. Which would indicate that the website medium should have produced a higher number of visits. However, one indicator in support of the current findings is that the chance to pursue employment did not statistically differ between recruitment mediums. The website condition

(M= 2.5, SD= 1.10) was slightly greater than the game condition (M=2.30, SD= 1.15), $F(1,186)$= 2.11, p=.147. These findings suggest that although the gamified medium did not affect recruitment outcomes such as attitudes towards the company and organizational attraction to the same degree as the website condition. The end result, and arguably the most important recruitment outcome according to Barber (1999), seeking further employment information- was equal in both conditions. Further lending credence to the use of a gamified medium as a method for recruitment.

4.6 Limitations

Although Chapman et al (2006) found that applicants who are asked to role-play as job seekers are viable alternatives to actual job seekers, the procedures of the present study impose a number of limitations. The total length of the study of 1.5 hours may have introduced fatigue effects and/or mood effects as suggested from the negative PANAS results and time spent on medium. A paired samples t-test was used to determine whether a difference existed in negative PANAS between time 1 and time 2. A significant difference was found between time 1 (M= 1.30, SD=. 54) and time 2 (M= 1.35, SD= .56) negative PANAS, $t(353)$= -2.47, p<.05. Similarly, it was found that the average time spent on the first recruitment medium (M= 14.05, SD= 9.5; minutes) was longer than time spent on the second medium (M=13.04 , SD= 8.56; minutes), though, this effect was not significant, $t(317)$= .956, p=.34. However, the reported fatigue and mood effects are not a cause for concern. As the design of the study had carefully counterbalanced each condition to mitigate for such effects.

A second limitation to the current study was the artificial presentation of recruitment advertisements (websites). Participants were required to view two recruitment advertisements for

a maximum of half an hour each. Although this procedure enhances ecological validity, it may not have allowed participants to experience recruitment advertisements as they were intended. The crux of a gamified recruitment experience is that these mediums may be better at capturing people's attention who are not currently seeking jobs- and subsequently converting them into potential job candidates.

In addition to the procedural limitation, another methodological limitation is the limited number of companies that were used in the present study. However, pre-company attitude measurements suggest that both L'Oreal (M=4.40, SD= .70) and Maersk (M= 4.13, SD= .54) were not substantially different. Another limitation to the current study is that the gamified mediums were used for the purpose of research both had a different playing style. The L'Oreal game could be categorized as a role-playing game whereas the Maersk game played more as a simulator. Given these limitations, a number of metrics were controlled for such as ease of use, game enjoyment and content usefulness that allowed for fair comparison between games.

Overall, the use of real recruitment websites removed experimental control, however, using real websites provided greater fidelity to data collection and increases the generalizability to the recruitment context (Allen et al, 2007). Controls were used to mitigate any effects that may arise from the use of real recruitment websites. Admittedly, comparing organization gamified recruitment applications with organizational recruitment websites offers an advantage to the latter because of the presence of the amount of organizational information. However, the measures used in this study attempted to control for extraneous information obtained from the websites. Such that the items created for the study attempted to measure only information that is contained in both recruitment medium. The methods employed in this study reflect the preliminary nature of the study. As of the writing of this thesis, only four organizations have

employed the use of gamification in their recruitment practices (L'Oreal, Maersk, Deloitte and Marriott). The two games used in this study were chosen based on their similarities to each other and their adherence to the definition of gamification.

4.7 Future research

One of the biggest issues facing gamification researchers to date is the lack of a unanimous definition. Moving forward, a nomological network that works to define how and why gamification may work should be the first step before further studying of the process continues. Research on gamification in the recruitment process should then focus on aspects of gameplay, and how game elements may infer attitude change towards the company. A micro-view of gamified mediums should be conducted to understand which mechanisms of gameplay work towards creating positive attitudes towards organizations. The present study provides an overview of the effectiveness of a gamified recruitment medium. The results suggest that while gamified recruitment mediums may not be more effective than traditional recruitment mediums, they are still a viable recruitment medium. Further research is required to understand how attitudes towards organizations may affect organizational attractiveness over time. Similarly, whether recruitment mediums such as games may create longer lasting impressions of organizations over and above traditional means of recruitment.

In addition, a structural equation model (SEM) path analysis should be conducted to determine how a gamified medium may work. In the present study, a series of mediation analyses were used to conceptualize a possible mechanism. However, a path model analysis was not conducted as it was not within the scope of the current study.

4.8 Conclusion

As the war for talent intensifies, organizations will continually strive to find new and improved recruitment processes. Novel recruitment methods enhance an organizations competitive advantage as they may appeal to potential applicants that are sought for. The current study examined whether a gamified recruitment medium was more effective than a traditional, website recruitment medium. It was found that the traditional recruitment medium outperformed the gamified medium in all recruitment outcomes measured. However, both recruitment mediums were effective in improving attitudes towards the company. Subsequently leading to a similar number of participants seeking further information about the organization outside the study. Although the gamified recruitment medium was not as effective as the traditional, website medium, gamified recruitment mediums are extremely innovative and are a viable alternative to traditional recruitment methods.

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5.1 Pre-attitudinal or time 0 measures.

Controls
1) Age
2) Gender
3) Ethnicity

Game Experience
(1-7, Strongly disagree, strongly agree)
1) I often play games online
2) Overall, I'd consider myself someone who plays video games

Familiarity scale
(1-7, Not familiar, Very familiar)
1) In general, how familiar are you with this company/industry?

PANAS Questionnaire (Watson et al., 1988)
(1= very slightly or not at all; 5= extremely)

1. Interested	11. Irritable
2. Distressed	12. Alert
3. Excited	13. Ashamed
4. Upset	14. Inspired
5. Strong	15. Nervous
6. Guilty	16. Determined
7. Scared	17. Attentive
8. Hostile	18. Jittery
9. Enthusiastic	19. Active
10. Proud	20. Afraid

Attitudinal questionnaires (Belief/Affect scale; Zajonc, 1988). These measures were also used at time 1 and time 2.

L'Oreal *(affective)*

1) I feel that L'Oreal is a good place to work
2) I feel that L'Oreal offers challenging job positions
3) I feel positive about L'Oreal as a company
4) I feel that L'Oreal is an equitable employer
5) I feel that L'Oreal is a technologically advanced company
6) I feel that I have learned more about jobs at L'Oreal
7) I feel that L'Oreal is a fun place to work
8) I feel that L'Oreal utilizes proper management
9) I feel that L'Oreal is a trendy company

10) I feel that L'Oreal is an innovative and creative company
11) I feel that L'Oreal is a company with high integrity

L'Oreal (belief)
1) L'Oreal is a dominant organization
2) L'Oreal offers challenging jobs
3) L'Oreal is environmentally friendly
4) L'Oreal provides equal opportunity for all
5) L'Oreal is technologically advanced

Cosmetic industry (affective)
1) I feel that the Cosmetic industry offers good jobs
2) I feel that jobs in the Cosmetic industry are challenging
3) I feel positive about the Cosmetic industry
4) I feel that the Cosmetic industry is cutting edge
5) I feel that the Cosmetic industry offers equal opportunity
6) I feel that the Cosmetic industry offers fun and enjoyable jobs
7) I feel that the Cosmetic industry is trendy
8) I feel that the Cosmetic industry is innovative and creative

Cosmetic industry (belief)
1) The Cosmetic industry offers good jobs
2) The Cosmetic industry offers challenging jobs
3) The Cosmetic industry is a fun place to work
4) The Cosmetic industry is technologically advanced
5) The Cosmetic industry offers equal opportunity
6) The Cosmetic industry is trendy
7) The Cosmetic industry is innovative and creative
8) Overall, I believe the Cosmetic industry is a great place to work

Maersk (affective)
1) I feel that Maersk is a good place to work
2) I feel that Maersk offers challenging job positions
3) I feel positive about Maersk as a company
4) I feel that Maersk is an equitable employer
5) I feel that Maersk is a technologically advanced company
6) I feel that I have learned more about jobs at Maersk
7) I feel that Maersk is a fun place to work
8) I feel that Maersk utilizes proper management
9) I feel that Maersk is a trendy company
10) I feel that Maersk is an innovative and creative company
11) I feel that Maersk is a company with high integrity

Maersk (belief)

6) Maersk is a dominant organization
7) Maersk offers challenging jobs
8) Maersk is environmentally friendly
9) Maersk provides equal opportunity for all
10) Maersk is technologically advanced

Oil & Gas industry *(affective)*
9) I feel that the oil & gas industry offers good jobs
10) I feel that jobs in the oil & gas industry are challenging
11) I feel positive about the oil & gas industry
12) I feel that the oil & gas industry is cutting edge
13) I feel that the oil & gas industry offers equal opportunity
14) I feel that the oil & gas industry offers fun and enjoyable jobs
15) I feel that the oil & gas industry is trendy
16) I feel that the oil & gas industry is innovative and creative

Oil & Gas industry *(belief)*
9) The oil & gas industry offers good jobs
10) The oil & gas industry offers challenging jobs
11) The oil & gas industry is a fun place to work
12) The oil & gas industry is technologically advanced
13) The oil & gas industry offers equal opportunity
14) The oil & gas industry is trendy
15) The oil & gas industry is innovative and creative
16) Overall, I believe the oil & gas industry is a great place to work

5.2 Post attitudinal or time 1 and time 2 outcome measures

Ease of use website (Williamson et al.'s, 2003)
1) Company x's website was clear and understandable
2) Company x's website did not require a lot of mental effort to navigate
3) Company x's website was easy to use
4) Company x's website was well organized

Content usefulness (Williamson et al, 2003- double check)

1) The website provided an adequate level of information needed to evaluate Menelik as a prospective employer
2) The website contained all of the information the respondent liked to have when evaluating a prospective employer
3) The website provided detailed information about Menelik
4) The website provided information that is relevant to prospective employees

Enjoyment of the Game
(1-5, not much at all; a very great amount)
1) How much did you enjoy the game?
2) I found the game difficult to learn and play (reverse coded)

Amount of job information website (Allen et al, 2006)
(1-5 scale, not much at all; very great amount)
How much employment or job opportunity-related information did the web site provide?
1) Compared with what you expected to find?
2) Compared with other web sites you have visited?
3) Compared with the amount of information you would need before contacting the organization?
4) Compared with the amount of information about employment opportunities provided by other sources?

Amount of Organizational Information (Allen et al, 2006)
(1-5 scale, not much at all; very great amount)
How much information about the organization did the web site provide?
1) Compared with what you expected?
2) Compared with other web sites you have visited?
3) Compared with the amount of information you would need before contacting the organization?
4) Compared with the amount of information about employment opportunities provided by other sources?

Attitude towards the site (Chen & Wells, 1999)
1 Definitely disagree ; 5 Definitely agree
1) This website makes it easy for me to build a relationship with the company

2) I feel comfortable surfing this website
3) Compared to other websites, I would rate this one as
4) I enjoyed the website

Attitude toward the organization (Allen, 2004; Fishbein & Ajzen, 1975)
1= very negative; 5= very positive
1) What is your overall attitude toward this organization?
2) In your judgment, how does this organization compare with other organizations of the same type and size?
3) In your opinion, how do jobs at this organization compare with other organizations of the same type and size?

Attitude toward the industry (Fishbein & Ajzen, 1975)
1) What is your overall attitude toward this industry?
2) In your judgement, how does this industry compare with other industries?
3) What is your overall attitude about jobs in this industry?
4) In your opinion, how do jobs in this industry compare with other industries?

Organizational attractiveness (Highhouse, Lievens, and Sinar, 2003)
1= strongly disagree; 7 strongly agree
1) For me, this company would be a good place to work
2) I would not be interested in this company expect as a last resort
3) This company is attractive to me as a place for employment
4) I am interested in learning more about this company
5) A job at this company is very appealing to me

Willingness to Recommend Organization (Cable & Judge, 1996)
1) How likely would you be to recommend this organization to your friends as a good place to work?
2) Would you tell your friends NOT to work for this organization?

Intentions to pursue employment (Fishbein & Ajzen, 1975)
1) How likely are you to search the internet to obtain information about jobs with this organization?
2) How likely are you to consider joining this organization?
3) How likely are you to submit an application to this organization?

Organizational Image (Turban and Keon, 1997)
1) How does this organization compare to other organizations for their concern for the environment?
2) How does this organization compare to other organizations for their high ethical standards?
3) How does this organization compare to other organizations for their overall public image?
4) How does this organization compare to other organizations for their community involvement?

Behavioral follow-up question
1) How likely are you to visit this website in the future to learn more about careers offered?

6.1 Instructions:

This study seeks to examine real job search behaviors. Please **assume the role of a potential job seeker**, **act** and **think** as if you were currently seeking employment for the remainder of the study. You will be examining recruitment materials provided by real organizations.

This study will take the **full** 1 hour and 30 minutes to complete.

1) You will begin by answering a number of surveys. Upon completion of the surveys..

2) You will be **prompted** to message the researcher via gmail for the recruitment materials ("task 1"). Using the reply button, message the researcher "task 1" to receive your task. Please be patient as emails may be delayed by 1-2 minutes.
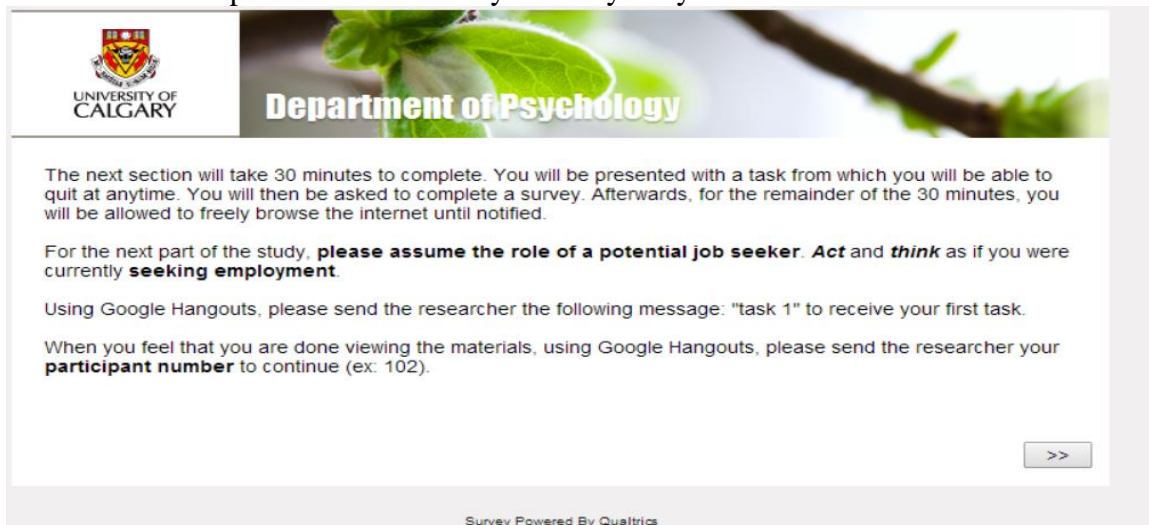
3) You may choose to view the materials for as **long as you want**. **You may stop viewing** the material at any time and continue onto the next survey section. The goal of this study is to capture "real" job seeker behaviors.

4) When you feel that you have finished viewing the recruitment material, you will message the researcher your **participant number** to receive a **password** to continue to the next survey section.

5) Upon completion of the **first of two** sections, you will be allowed to freely browse the internet.

6) The researcher will notify you when "task 2 begins".

7) Please repeat these instructions for "task 2".

Note: During one of your tasks you will receive a score, please record the score and report it in the respective survey question.
To be read aloud:

This study seeks to examine real job search behaviors. Please **assume the role of a potential job seeker**, **act** and **think** as if you were currently seeking employment for the duration of the study. You will be examining recruitment materials provided by real organizations.

This study will take the **full** 1 hour and 30 minutes to complete. This study will end at: xx:xx today.

1) The researcher will begin the study by emailing a URL to your gmail account. Please expect a 1-2 minute delay when communicating through email.

2) You will begin by answering survey questions. After surveys are complete, you will be asked to "reply" to the researcher with the word "task 1" to receive your first task. The researcher will distribute the first task when he has received a reply from every participant. **Please be patient when waiting for your task. This step will become clear as you progress through the survey.**

3) You may choose to view the materials for as **long as you want**. **You may stop viewing** the material at any time and continue onto the next survey section. The goal of this study is to capture "real" job seeker behaviors.

4) This study seeks to examine real job search behaviors. When you feel that you have finished viewing the recruitment material, you will message the researcher your **participant number** to receive a **password** to continue to the next survey. In other words, you may stop viewing the recruitment material at ANY TIME.

5) Upon completion of the first section, you will be allowed to freely browse the internet until notified by the researcher.

6) You will be given a second task to complete. The same instructions apply.

7) During one of your tasks, you will receive a score. Please take note of the score and report it in your survey question.

8) Instructions can be found on your desk.

9) Please answer all questions to the best of your abilities.

10) Again, this study will require the full 1.5 hours. This study will end at: xx:xx.
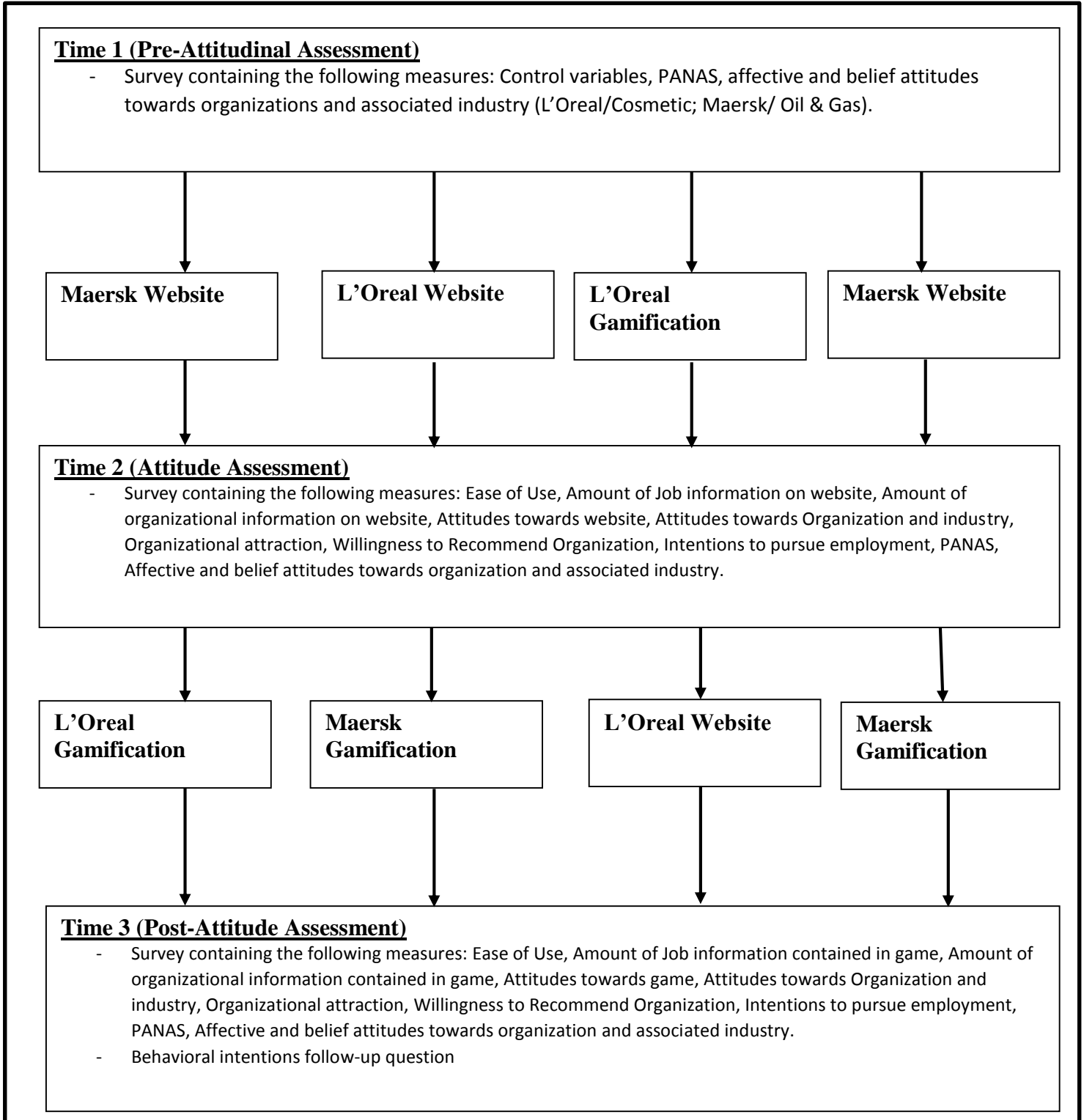
6.2 Behavioural Follow-up

Emails were sent via two emails: Maerskemployment@gmail.com
Lorealemployment@gmail.com

An example email:

"This email is to inform you of new employment opportunities at Maersk. If you would like to view these exciting job opportunities, please follow the link: Maersk"

-Maersk Employment Services

A total of 8 websites were created and visitor data was logged via Google Analytics.

6.3 Experimental Methodology

Time 1 (Pre-Attitudinal Assessment)
- Survey containing the following measures: Control variables, PANAS, affective and belief attitudes towards organizations and associated industry (L'Oreal/Cosmetic; Maersk/ Oil & Gas).

Maersk Website	**L'Oreal Website**	**L'Oreal Gamification**	**Maersk Website**

Time 2 (Attitude Assessment)
- Survey containing the following measures: Ease of Use, Amount of Job information on website, Amount of organizational information on website, Attitudes towards website, Attitudes towards Organization and industry, Organizational attraction, Willingness to Recommend Organization, Intentions to pursue employment, PANAS, Affective and belief attitudes towards organization and associated industry.

L'Oreal Gamification	**Maersk Gamification**	**L'Oreal Website**	**Maersk Gamification**

Time 3 (Post-Attitude Assessment)
- Survey containing the following measures: Ease of Use, Amount of Job information contained in game, Amount of organizational information contained in game, Attitudes towards game, Attitudes towards Organization and industry, Organizational attraction, Willingness to Recommend Organization, Intentions to pursue employment, PANAS, Affective and belief attitudes towards organization and associated industry.
- Behavioral intentions follow-up question

Appendix D: Recruitment Materials

7.1 Maersk Game

These are screenshots from the Maersk game. The game educates players on various aspects of oil and gas exploration and production. It then simulates the exploration, finding and drilling for oil. Players race against the computer to accumulate 1,000,000 points.
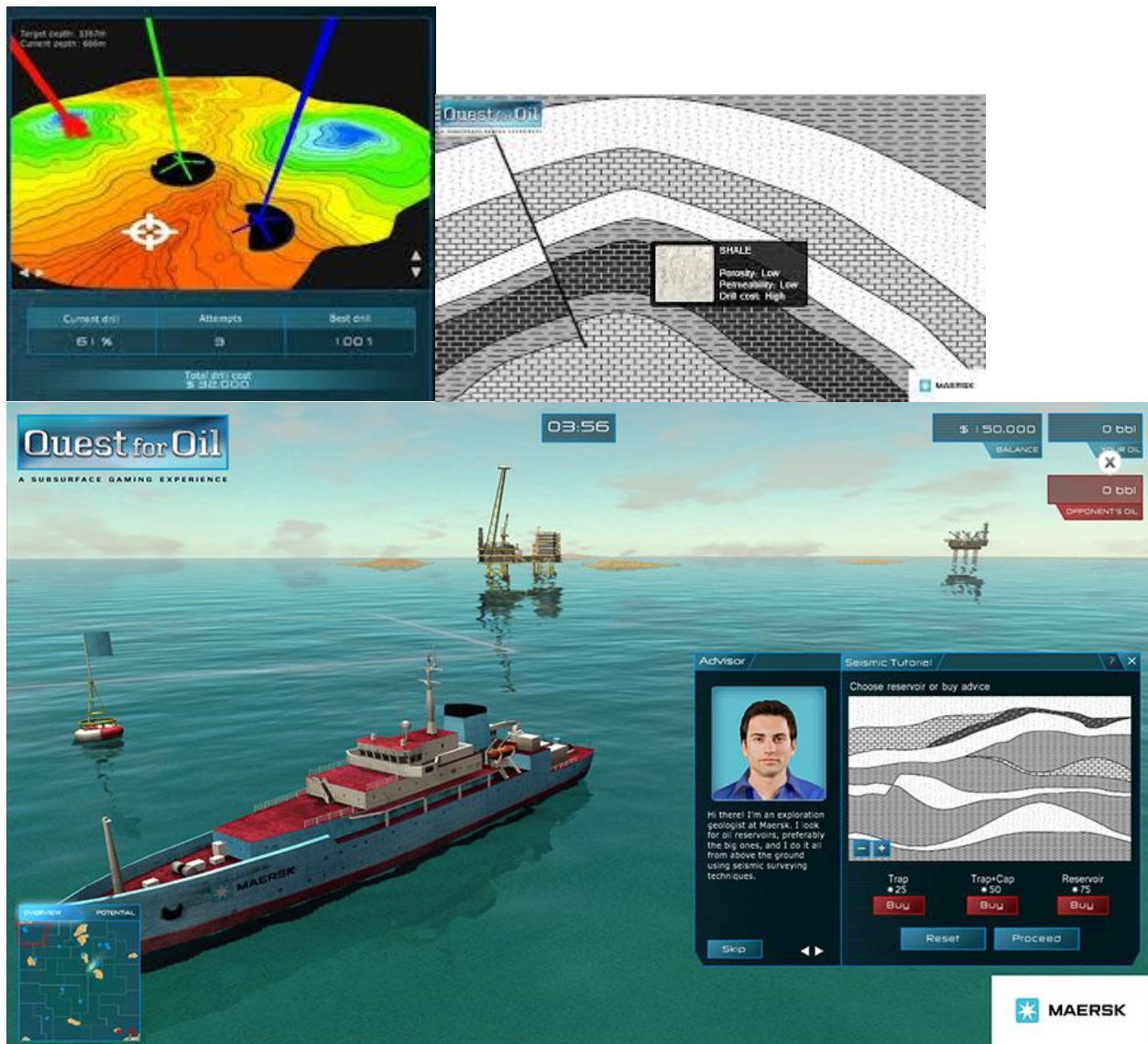
7.2 L'Oreal Game

The L'Oreal game introduces players to the various jobs and roles within the company. Players role-play as a new hire in the company and are required to answer skill testing questions throughout gameplay. Correct answers are awarded points. Points can then be used in the application process at L'Oreal.