

**THE REPUBLIC OF TURKEY
BAHCESEHIR UNIVERSITY**

**THE TRANSFORMATIVE ROLE OF HUMAN
RESOURCES (HR) IN THE DIGITALISATION OF
COMPANIES: A STUDY ON HOW GAME-BASED
ASSESSMENTS CAN ATTRACT MORE TALENT IN
THE RECRUITING PROCESSES**

Master's Thesis

UĞUR GÜRBÜZ

ISTANBUL, 2020

**REPUBLIC OF TURKEY
BAHCESEHIR UNIVERSITY**

**GRADUATE SCHOOL OF SOCIAL SCIENCES
MASTER OF BUSINESS ADMINISTRATION**

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Thesis Advisor: ASSOC. PROF. MİNE AFACAN FINDIKLI

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Name/Last Name of the Student: Uğur Gürbüz

Date of the Defense of Thesis:

The thesis has been approved by the Graduate School of Social Sciences.

Assoc. Prof. Burak KÜNTAY
Graduate School Director

I certify that this thesis meets all the requirements as a thesis for the degree of Master of Business Administration.

Assoc. Prof. Ela ÜNLER
Program Coordinator

This is to certify that we have read this thesis and we find it fully adequate in scope, quality and content, as a thesis for the degree of Master of Arts.

Examining Comittee Members

Signature

Thesis Supervisor
Assoc. Prof. Mine Afacan FINDIKLI

Thesis Co-supervisor
Assoc. Prof. Ahmet ERKUŞ

Member
Asst. Prof. Şebnem ÖZDEMİR

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ÖZET

ŞİRKETLERİN DİJİTAL DÖNÜŞÜMÜNDE İK’NİN DÖNÜŞTÜRÜCÜ ROLÜ: DAHA FAZLA YETENEĞİ ŞİRKETE KAZANDIRMAK İÇİN İŞE ALIM SÜREÇLERİNDE KULLANILAN OYUNLAŞTIRILMIŞ DEĞERLENDİRME TESTİ ÜZERİNE BİR ÇALIŞMA

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Bu çalışma, şirket işe alım süreçlerinde oyunlaştırılmış değerlendirme testlerinin kullanılmasının yetenek kazanma üzerindeki etkisini analiz etmektedir. Günümüzde “Yetenek Açığı” olarak bilinen bir kriz, iş dünyasındaki en büyük sorunlardan biri olarak ortaya çıkıyor. Basitçe söylemek gerekirse, “Yetenek Açığı”, işverenin adayda aradığı yetkinlikler ile adayın gerçekte sahip olduğu yetkinlikler arasındaki tutarsızlıktır. Bu yetenek açığının oranı arttıkça, işletmelerin bu sorunu çözme konusundaki umutsuzluğu da artmaktadır. İşletmeler, başvuru havuzunu kontrol edemeseler de, değerlendirme ve seçme süreçlerini iyileştirebilirler. Bu çalışma, aslında şirketlerin adaylarıyla kurdukları iletişim yollarının, şirketin kültürü ve vizyonu hakkında önemli bilgileri de adaya aktarabileceğini vurgulamaktadır. Ancak bunu bilmek, umutsuzluk değil şirketler için bir umut kaynağı olmalıdır. Teknolojinin yükselişi göz önüne alındığında, şirketler bugün ellerinde çeşitli yöntemlere sahiptir: Sosyal medya paylaşımları, kariyer sayfaları, oyunlaştırılmış işe alım ve değerlendirme platformları vb. Bu çalışma, özellikle şirket işe alım süreçlerine uygulanabilecek oyunlaştırılmış değerlendirme testi olarak bilinen bu yöntemlerden birine odaklanmaktadır.

Bu çalışmada, 35 genç yetenekten oluşan bir hedef grup, hem “oyunlaştırılmış değerlendirme testini” hem de “geleneksel değerlendirme testini” deneyimledi. Daha sonra, AHP metodu kullanılarak, bu testlerin adaylar üzerinde yarattığı algı ölçüldü. Ve yetenek açığının olduğu bu çağda, hangi değerlendirme testini kullanan firmaların daha avantajlı olabileceği belirlendi.

Keywords: Oyunlaştırılmış Değerlendirme Testi, Geleneksel Değerlendirme Testi, Dijital İK, Yetenek Kazanımı

ABSTRACT

THE TRANSFORMATIVE ROLE OF HUMAN RESOURCES (HR) IN THE DIGITALISATION OF COMPANIES: A STUDY ON HOW GAME-BASED ASSESSMENTS CAN ATTRACT MORE TALENT IN THE RECRUITING PROCESSES

Uğur Gürbüz

Master of Business Administration

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This study analyzes the influence of using game-based assessments in company recruitment processes and its affect on talent acquisition. Today, a crisis known as the “Talent Gap” poses as one of the biggest problems in business world. Simply put, the “Talent Gap” is the discrepancy between aptitude business want to hire, and the actual aptitude of the applicant they do hire. As the ratio of this talent gap increases, so too does the desperation of businesses to alleviate this problem. Although businesses cannot control the pool of applicants, they can however refine their selection process. Attracting talented applicants is becoming an increasingly critical issue for companies. This study highlights that, in fact, the very means by which companies communicate with their candidates reveals vital information about a company’s vision and culture. Knowing this however should be a source of hope for companies, not despair. Given the rise of technology, companies today have a diverse array of techniques at their disposal such as (but not limited to): social media posts, career pages and gamification recruitment strategies in order to attract greater talent to their teams. This Project focuses particularly on one of these techniques known as *game-based assesment* which is can be applied to company recruitment processes.

In this study, a target group, consisting of 35 candidates, underwent both a “traditional assesment” and a “game-based assesment.” After completing both processes, their perceptions about the respective companies were collected. Their preferences (about which company they would prefer to work within) were then analyzed and which test is more advantegous for companies was determined. An underlying assumption being that the preferences of talented potential employees may be strengthened or dissuaded *unconsciously* in the application process—before any opportunity-cost assessments about more concrete elements of the job have factored into the equation. Fostering a positive relationship with applicants before they’ve even been hired widens the pool of potential employees that the company may select from. Likewise, the *earlier* that talented

individuals resolve that Company A is more innovative and attractive than its competition, the more quickly Company A can resolve its “Talent Crisis.”

Keywords: Game Based Assesment, Traditional Assesment, Digital HR, Talent Acquisition



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1. INTRODUCTION

1.1 BACKGROUND, MOTIVATION AND RESEARCH PROBLEM OF THE STUDY

In every passing day, the pace of change in the business world exponentially increases under the effect of digital transformation. Almost as quickly as new business models are developed, new needs and new jobs appear which disrupt the nascent status quo. When this becomes the case, it then becomes inevitable that companies to adapt to the pace of this change in order to survive and remain competitive in their sector of the market. These changes may take the form of new business models or jobs, but fundamentally these shifts demand a re-prioritization of skills needed amongst its existing and rising employees. It is becoming more and more difficult to find people who possess these new skills, in part because the skillset itself is perpetually shifting. Although this situation lends itself to the widening of the “Talent Gap” companies can adapt their recruitment strategies to attract individuals with a higher potential to weather such changes. According to the 2018 Talent Gap Report, done by Manpower Group, 45 percent of employers say they can’t find the talents they need (Manpower Group 2018). In the beginning what begins as a mere “Talent Gap” can grow into a more worrisome “Talent Crisis.”

When it comes to overcoming the “Talent Crisis,” the task of alleviating the situation becomes a critical issue, particularly for the Human Resources (HR) Departments of the ailing companies. Because HR Departments wield the power to hire and fire, they should also be first responders to the scene of the Talent Crisis. With the rise of technology, it is possible to see innovative and creative ways of attraction. This means that many companies must communicate with talented applicants at the right time and right place by means of these new technologies. For instance, this can be done through interactive career pages, new generation recruitment processes, social media posts, beacons, job interviews via artificial intelligence and additional technological means. (Hollan et al. 2007).

As mentioned, “Game-Based Assessment” (GBA) can be a particularly effective way of engaging talented individuals in the recruitment process. Game-based assessment is an assessment tool that measures soft skills, such as problem-solving, analytical thinking, and

creative aspects. Essentially, it is a “gamified” way of conducting traditional assessment tools which relies on the assumption that talent can be assessed just as effectively by playing a game which is interesting enough to the applicant that it engages a wider (and more descriptive) range of their skill. This is beneficial for both the company and for the “player” (applicant). While the applicant can enjoy an entertaining assessment experience, the company can see a more representative picture of their skillset. This is entirely different from traditional assessment tools (Landers 2015). Traditional assessments are generally apply conventional methods of testing such as a written document, quiz, exam, or paper. High school graduation examination can be given as example to traditional assessment (Dikli 2003).

There are some research studies about game-based assessments, which aim to show it’s validity and which focus on if the candidate will be engaged more or not. However, none exist in detail about what kind of perception using this form of assessment creates in the minds of talented candidates themselves related to the company in terms of technology, innovation, attractiveness, entertainment, reliability, feeling comfortable, sincerity, feeling close, will to work, feeling important and feeling close. In addition to the existing studies, this is also a very important point because this kind of data collecting from candidates can provide us a chance to see not only the game-based assessment but also the company, offering it, from candidates’ perspective. And this way, companies can have a better idea about investing in game-based assessment tool or not, which is more expensive than traditional assessment tests. Accordingly, the research problem of this study was defined as *“Does using game-based assessment provide an advantage to companies in the war of attracting and retaining young talents?”*

In conclusion, this study aims to fill that gap by measuring the aptitudes and perspectives of 35 prospective employees towards the companies, to which they are applying. In order to compare companies offering game-based assessment versus companies offering the traditional assessment test, this study follows the methods prescribed by the Analytic Hierarchy Process method (AHP). Additionally, “State-trait Anxiety Inventory” was also used in order to ensure that the data collected from the candidates was accurate as possible.

1.2 OVERVIEW OF THE STRUCTURE OF THE STUDY

This study is organized into the subcategories: Literature review, methodology, data collection, findings, discussions, conclusions, limitations, strengths and recommendations parts. The literature review discusses both the national and international literature as well as recent and previously published research which focused on digital transformation, human resources management, transformative role of human resources in digitalisation, gamification, game-based assessments, traditional assessments, and attracting and retaining young talent. Regarding methodology, this project clarifies the population sample and how this sample was selected, as well as the experimental procedures conducted. The section titled, “Data Collection” provides greater detail on how the Analytic Hierarchy Process (AHP) method and State-Trait Anxiety Inventory produced a workable data set. The result of this data is then relayed and analyzed in the “Findings” section. Lastly, the Project concludes with a final discussion as to how this study contributes both to the scientific field as much as the business world, and to what extent the stated initial goals of this project are being achieved and realized.

2. LITERATURE REVIEW

2.1 DIGITAL TRANSFORMATION

Digital transformation is an important term for the businesses because it alludes to disruptive changes that may require businesses to alter how they operate which costs time and money. For this reason, business leaders have started to more seriously consider the not only impact of digital transformation not from a reactionary standpoint, but from a proactive one (Osmundsen et al. 2018).

Figure 2.1: From physical environment to digital world



Another key concept is that digitalisation is self-reinforcing. In other words, *digitalisation benefits from digitisation* (Henriette et al. 2015). Once data data is converted from physical to digital mediums for the sake of efficiency, there is no turning back as seen in the Figure 2.1: From physical environment to digital world (XRM Vision 2018). This is the most simplistic definition of digitalisation. However, as we advance our conceptions of business modeling, the process of using technologies in order to establish these new business processes, culture, employee and customer experience have been long embedded in the digitalization process and this synergistic momentum has allowed the best businesses to adapt and survive in the competitive market (Yoo et al. 2010).

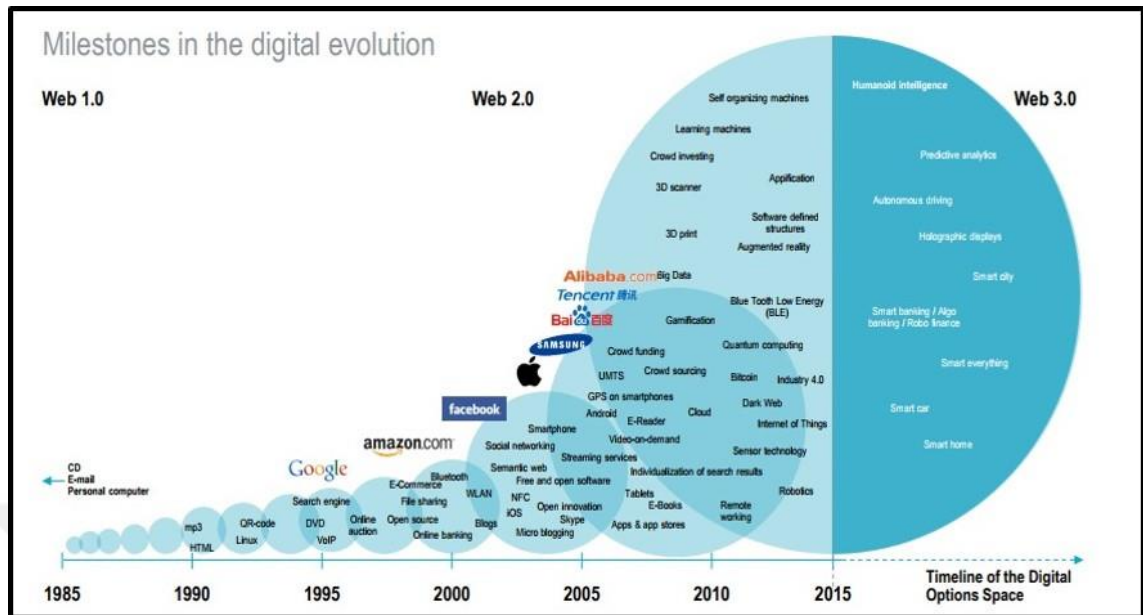
Digital technologies are intertwined in the lives of both the customer and consumer, the client and the service provider (Ebert & Duarte 2016). The rapidly increasing capacity of

technologies enables the digital transformation of society, of businesses, and the creative and innovative new ways in which these demographics interact.(Gebayew et al. 2018). Digital transformation strategies are composed of four dimensions: (1) finances, (2) changes in value creation, the use of (3) technologies and (4)structural changes (Matt et al. 2015).

The impacts of digital transformation can be seen every part of an organization because it is fundamental to the very survival of business a competitive market (Bharadwaj 2000). According to Global Digital Transformation Report conducted with 1614 participants from 15 countries in 2017 by Fujitsu, 89 percent of business leaders have actively identified that their organizations are in some phase of digital transformation. This overwhelming majority implies that, even for the 11 percent who did not *explicitly* articulate the degree of digital transformation taking place (or not taking place within their company), that they are now competing with the 89 percent who *have* addressed it. “The 89 percent” who have accepted it have long been planning, testing and implementing different digital transformation projects. Within the study, 34 percent of their projects had already experienced positive outcomes. In today’s world, digital transformation has become an indispensable dimension embedded into the everyday agenda item for successful contemporary business leaders (Morakanyane et al. 2017).

After the arrival of Amazon to the social medias and improvements of artificial intelligence, organizations have been improving their ways for almost 30 years. All of these changes and improvements, which can be seen on the Figure 2.2: Milestones in the digital evolution, are to adapt the age of digital transformation not to be disrupted.

Figure 2.2: Milestones in the digital evolution



Nowhere is this more apparent than the tech industry itself. Hegemonic companies such as Apple and Amazon have the capital and capacity to adapt to new digital technologies which are simply inaccessible to other tech producers like Nokia and Kodak. At present, the discrepancy between these companies' capacities to adapt can't be reduced to simply talent acquisition – today. In this example, we see four cases and two scenarios. The first scenario, quite literally defined the technological era, and the second couldn't keep up. Not all examples need be as extreme, but even so, the digital transformation of the business world arrived long ago. It goes without saying that, at this point keeping up is a basic requirement to remaining competitive in the open market. Some forecasts even project that, within the next 5 years, the market size of companies undergoing some aspect of digital transformation will expand from \$150 billion to \$369 billion (Toolboom 2016).

2.2 THE HISTORY OF HUMAN RESOURCES (HR) MANAGEMENT

In the 1920s, emerging concern for workers' welfare developed into formalized positions focusing on *labour management*. Later, this then evolved into *personnel management* in the 1940s, at which point, it turned into *human resource management* as we know it today

(Armstrong 1977). Human Resources was a term is coined by P. F. Drucker in 1954 through his work called “The Practice of Management” (Thoman 2018). Although, the notion of what Human Resources has remained more or less constant since that time, the practices used in the field of human resources management (HRM), began to transform after the 1980s. Today, HRM practices are much more interconnected with company effectiveness on top of workers’ resources (Delery 1998).

Human resources management is often abbreviated to simply, human resources (HR) (Hassan et al. 2015). It is a process or practice of compensation and benefits, onboarding employees, culture, recruiting and career planning, talent management, payroll, learning and development, performance appraisal and employee motivation. Today, most of companies have an HR department, dealing with these practices (Paauwe & Boon 2009).

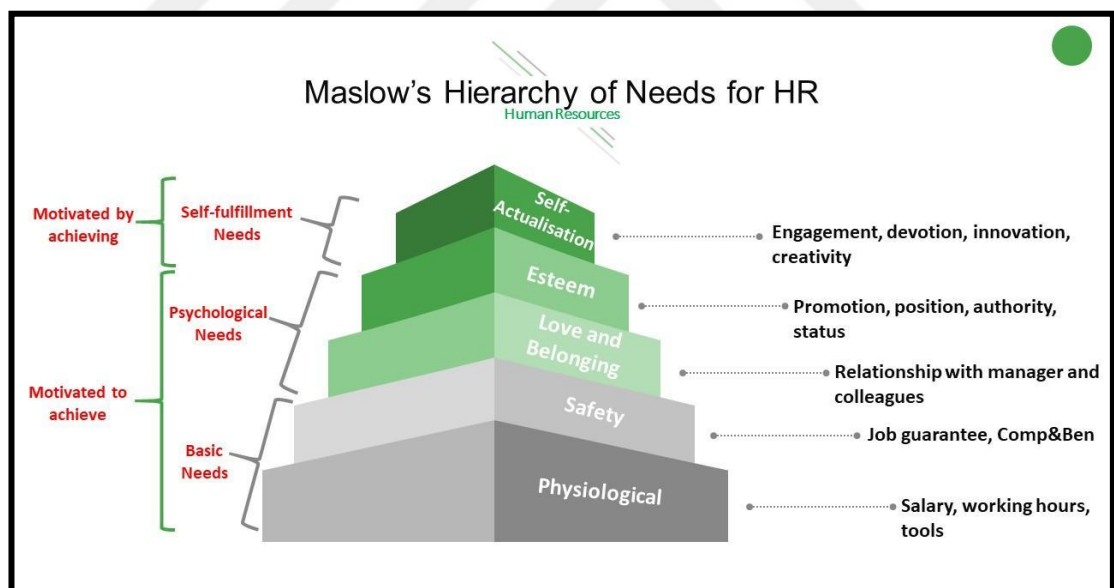
HRM fulfills important roles in the organization of any largescale business or company. It supports the mission and vision of the company by providing the organization with HR strategies which are inline with its business startegies. All together, HR strategies aim to facillitate the development a high performance culture, attracting and retaining talents, increasing the employee engagement and applying an ethical approach to managing people (Saraç 2016).

There are 6 models which explain what HRM is and how it operates such as the matching model, the Harvard model, contextual model, the 5-P model, european model, and the hard and soft models. The matching model of HRM says that HR systems and the organizational structure should be managed inline. The Harvard model of HRM emphasizes that HR includes all decisions and actions of management, which has an influence between employees and the organization. Contextual model of HRM says that environmental factors such as impacts of social, political and institutional forces are important, which have been undervalued in other models. The 5-P model of HRM describes how HR works under 5 concepts that are HR philosophy, HR policies, HR programmes, HR practices and HR processes. European model of HRM was described as environment, organizational objectives, focus on cost and benefits, relationship with employees, relationship with line managers and role of HR speacilist. Lastly, the hard and soft HRM models means that HRM is divided by two as hard and soft versions. While the hard one refers to the calculative quantitative and business aspects of HR, the soft one

refers to human relations such as leadership, motivation and communication (Armstrong 1977).

In time, human resources from has been evolved from its beginning as personel administration to its current developmental role as a strategic partner which contributes to improving organizations in terms of high performance (Thoman 2018). HRM practices have recently been associated with turnover, financial returns, productivity, and organization value. And this issue is called as strategic human resources management which means that HR plays a strategic role in the meeting of business objectives. This is because today’s businesses can be distrupted because of not only product or service that they provide, but also the talented man power. Accordingly, while business models and strategies are changing, human resources department must be in the hearth of this process because of the fact that they can manage employees in a more positive way (Delery 1998).

Figure 2.3: Maslow’s Hierarchy of Needs for HR



Recently, the roles of managers such as middle or line managers have changed from managing to leading, which means that it has evolved from controlling employees to leading them, improving productivity and providing revenue (Hassan et al. 2015). This change can be explained by the theory of Maslow’s Hierarchy of Needs which is

improved by Abraham Maslow in 1943. This theory claims that there are 5 essential needs to motivate humans, which are physiological, safety, social, self-esteem and self-actualisation. It can be applied for HRM as seen on the Figure 2.1: Maslow's Hierarchy of Needs for HR. According to it, the needs of employees in each step should be met in order to move to upper step. Not each step has to be met 100 percent. When an employee's journey is considered, it can be clearly said that self-actualisation for an employee is crucial for engagement, devotion, innovative and creative contribution. For this, physiological, safety, belonging and esteem needs must be met properly. For instance, when an employee thinks that she earns what she deserves, that she has a job guarantee, and that she has a good relations with her manager and colleagues, as well as that she has a status she needs, then it can be highly expected her to be engaged, devoted, innovative and creative for the organization. Once employees are in the step of self-actualisation, then they will provide contribution to the organization at maximum level with a high motivation. Their high motivation will be even noticed by their friends who are potential employees. Therefore, it can be seen that taking employees to self-actualisation step is strategically important for organizations. And this is a strategic action that business lines and HRM will do together (Jerome 2013).

2.3 THE TRANSFORMATIVE ROLE OF HUMAN RESOURCES (HR) IN DIGITALISATION

Digital Transformation is effecting not only external customers but also internal patrons of the system. Ultimately, HR must play two major roles on this. Firstly, HR employees be willing to adapt themselves by using improved digital transformation measures if they wish to help the company attract new employees which are also adaptable. (Deo 2017). Secondly, they must be willing to take the lead by preparing all the employees for digital transformation since HR is the department, that communicates with the employees in terms of company culture, trainings, motivation etc. (Francina 2018).

Digital transformation of a business is not only about use of technology in physical things but also it is about the company culture (Jones 2016). In other words, since digital technology has started to have an effect on most areas of industry, such as easy

communication via laptops and mobiles, it is clearly said that it influences humans at work, especially, human relations and work environment (Kumar 2016).

Digital HR transformation is rapidly happening while HR practitioners are getting pushed in order to take a larger responsibility on contributing to the organization to not only *do digital* but also *be digital*. According to the survey done in 2017 by Deloitte (Volini et al. 2017):

- i. 56 percent of organizations are reconceiving their HR processes to improve digital and mobile tools.
- ii. 51 percent of organizations are in the process of transformation on digital business models.
- iii. 33 percent of HR teams are using artificial intelligence to have a better HR solutions.
- iv. 41 percent of HR teams are developing HR mobile applications to have better HR services.

Figure 2.4: Transformation from traditional to digital HR



As seen on the Figure 2.4: Transformation from traditional to digital HR, digital transformation helps HR in terms of many ways such as time efficiency, reduced paper work, quick process, transparency, cost effective, less man power, accessible from anywhere (Hayton 2016).

New digital technologies are radically disrupting HR and reconstruct the future of human resources management (Kumar 2016). Digital HR has 6 key properties for an organization (Francina 2018):

- i. Digital HR is a measure for employee engagement
- ii. Digital HR is an enabler of cultural transformation
- iii. Digital HR is an empowerment instrument
- iv. Digital HR is the competitive benefit in the war for talent
- v. Digital HR is insights and predictions
- vi. Digital HR is the key to HR's 'Seat on the Table'

Figure 2.5: What appears to be happening in digital transformation

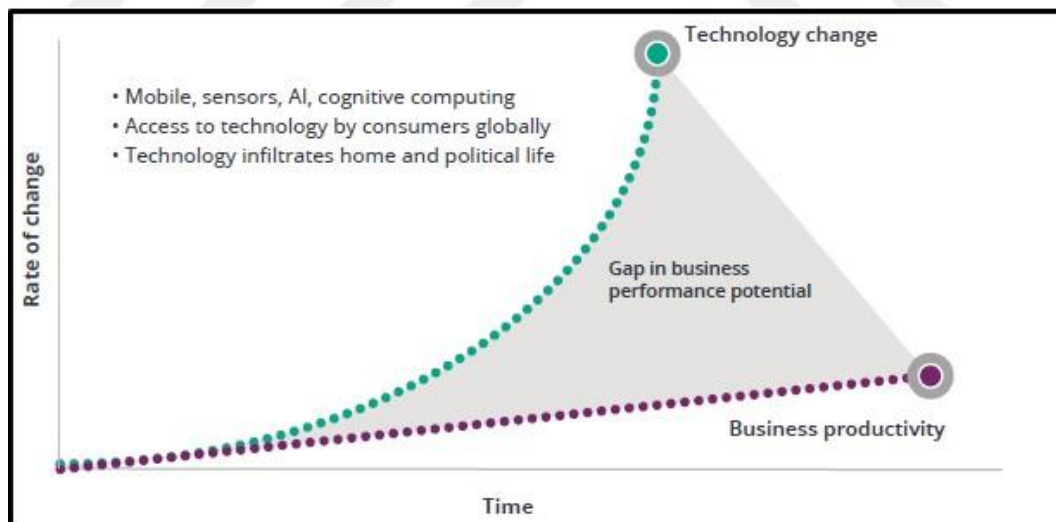
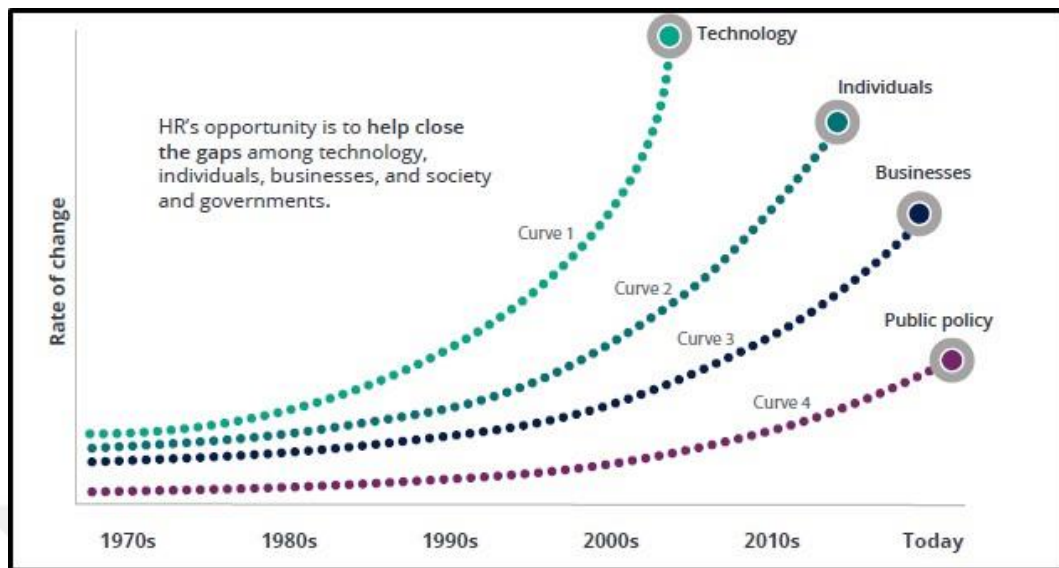
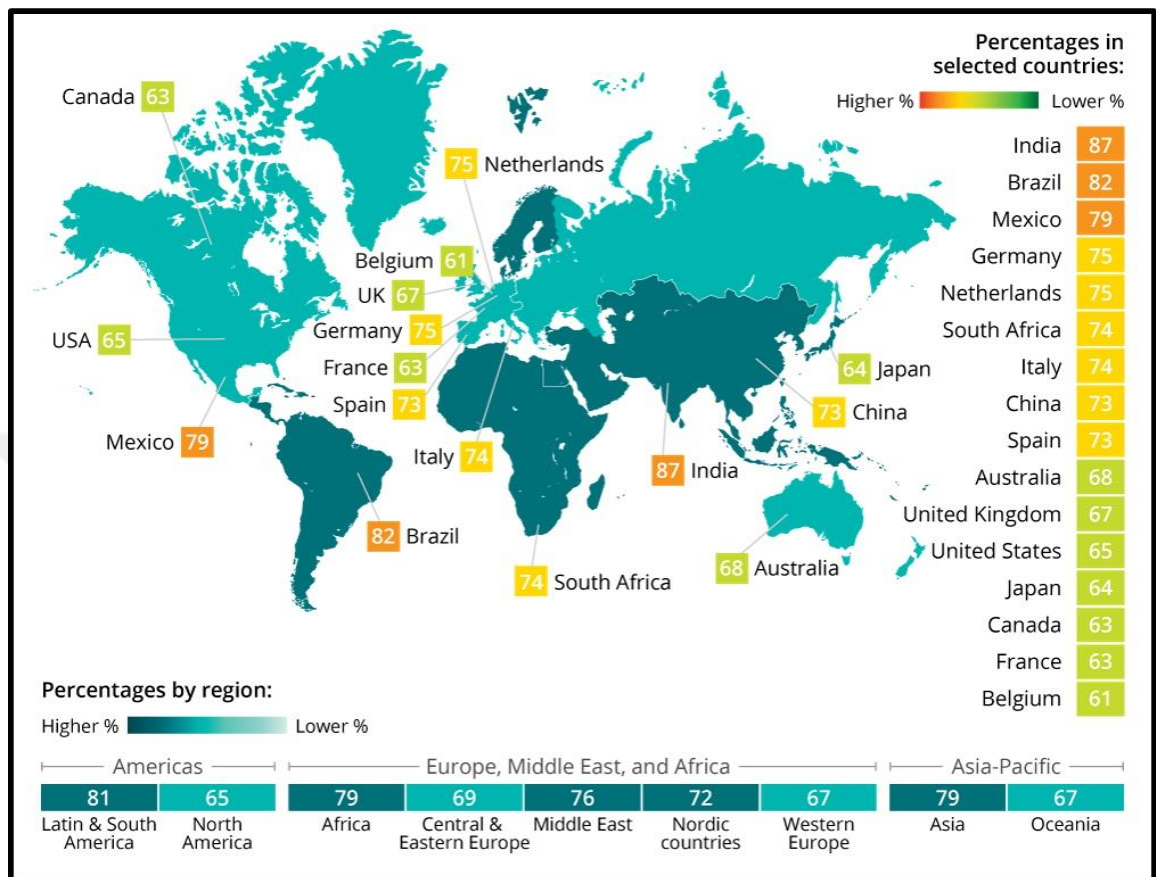


Figure 2.6: What is really happening in digital transformation



During digital transformation that new technologies such as artificial intelligence, internet of things, cognitive computing, mobile and blockchain rise, it can be thought that this technology change will be proportional to business productivity. However, it is not proportional as seen on the Figure 2.5: What appears to be happening. Human resources management is involved in digital transformation process to close this gap as seen on the Figure 2.6: What is really happening (Bersin et al. 2017).

Figure 2.7: Importance of Digital HR according to countries



Nowadays, The focus of HR is to build the organization of the future. This is why, companies are trying to hire talented people who are digitally savvy, doing tasks and sharing information in a transparent way with their colleagues. These talented people want to have a digital experience at work. On the Figure 2.7: Importance of Digital HR according to countries, it can be seen which countries rate this digital HR trend as “important” or “very important” (Volini et al. 2017).

It comes as no surprise to note that most HR departments have a seat at the table on most if not all digital transformation discussions. Particularly, they must play an active role on seven fields: Strategy, culture, leadership and skills, performance, service design and customer, technology and innovation (PPMA & Eduserv 2018).

In order to change the digital culture of the company, it is imperative both to *reskill* and *upskill* the existing employees. Reskilling means to have new skills while upskilling refers to improve the existing skills. In addition to this, recruiting the right talent, who is able to think digitally, is growing more important (Tripathi & Singh 2017). Talented individuals are important for organisations in terms of innovation and success so one role of HR is to attract and retain new talents to the company (Durou et al. 2016).

If HR can equip the company with more adequately prepared existing employees and higher quality new recruits, they can then help guide the company's digital journey. In the end, it is individuals who inspire change, who wield the technologic tools available to them, who innovate, and who increase competitiveness of the company (Hart 2015).

Today's HR practitioners needs these 6 technologies (Barcelos 2018):

- i. Social media platforms
- ii. Human resources information software
- iii. Talent acquisition software
- iv. Cloud technology
- v. Gamification techniques
- vi. Talent management software

According to a case study of SAP, who is one of the biggest cloud based solution providers on the market nowadays, they aimed to transform their HR digitally. To do this, SAP established a team which consisted of employees from business experts, technology experts, HR leaders, HR users and change management experts. The role of human resources management of SAP was to manage, develop and train almost 77.000 employees all over the world. Before the beginning of digital transformation, they identified specific objectives:

- vii. Enabling global collaboration in HR
- viii. Based on key performance indicator, providing efficient employee planning and forecasting of future skills
- ix. Establishing a global talent community
- x. Identifying and hiring the right employees
- xi. Developing a learning culture

- xii. Having a learning management platform that employees could customize
- xiii. Pushing learning and mobility offers to employees.
- xiv. Putting the leadership culture and behaviour into the priority
- xv. Embracing diversity
- xvi. Ensuring compliance

As a result of this digital HR transformation, SAP reached the fact that digital HR transformation play an important role on increasing effectiveness, decreasing complexity and creating solutions for ultimate customer satisfaction (Jones 2016).

2.4 THE GAMIFICATION CONCEPT

Digital transformation is the catalyst for innumerable technological trends, one of them being gamification. Although the term *gamification* appeared in the early 2000s, it became more focused after the beginning of 2010s (Deterding et al. 2011). The essential idea behind this concept is to increase the motivation of participants in non-game environments by stimulating behaviors in the matrix of the game-design itself (Wood & Reiners 2015).

To be clear, gamification is not a game by typical notions, but rather the association of *non-game-related work* through precisely configured elements of the game's design in order to motivate participation, engagement, and even, loyalty (Deterding & Nacke 2011). To put it another way, gamification can be described as the use of innate human interest and passion for playing games and solving puzzles so that their increase in user engagement can be transformed into actions in the workplace (Groh 2012).

The three key elements of gamifications are (1) dynamics, (2) mechanics, (3) components. Dynamics consider dimensions such as emotions, relationships, narratives and storyline associated with the game. The concept of mechanics involves achievements, challenges, cooperations, feedback, ownership, progression, transactions and stochastic elements. Components contain points, badges, leaderboards, quests, competition, virtual goods, gifting/sharing and levels (Werbach & Hunter 2012).

Gamification has many areas to be used such as healthcare, education, business activities, etc. It can be considered to teach a lesson to students in schools, to motivate employees

in workplace or to engage customers with your product (Gryaznova 2019). For example, Uber, which is transportation company located in USA, motivates their drivers to work faster and longer by competing with each other by means of gamification mechanics. In this gamification mechanics, uber drivers take different badges for “excellent service” or “great conversation” (Olyslager 2018). The mobile application Fitocracy can be given as an example in the health field. The gamification mechanics of it has an influence on changing user behaviour by helping users make the nutritional or personal workout plans by means of points, badges, achievements and leaderboards (Crook 2013).

Understanding gamification is important. This is because it has a power to advantage in terms of cost and time. When gamification is used very effectively, it can take a great attention of today’s people. One of the most popular gamification examples is *Pokemon Go*, which was downloaded millions times in a short time. Another example is *Foursquare*, which is used by millions of users. The common properties of them are to engage and motivate users by means of their gamification mechanics (Christians 2018).

Gamification is used in many fields of human resources (Krasulak 2015). For example, while it is very actively used by learning and development department to make learning processes more fun and attractive for employees, it has been also started to be used in assesment processes in recruitment for several years, which is called Game-Based Assesments (Wear 2018).

2.5 GAME BASED ASSESMENTS AND TRADITIONAL ASSESMENTS

Assesment tools are used to evaluate some skills of candidates such as resilience, flexibility, adaptability, decision making in the recruitment processes. While it was done in only traditional way in the past, nowadays gamified version of it, namely Game-Based Assesments, is also used in the recruitment processes (Stanescu et al. 2018). Traditional assesments are like the conventional methods of testing such as a written document, quiz, exam, or paper. High school graduation examination can be given as example to traditional assesment (Dikli 2003). Game based assesment is called as a technology-enabled assesment tool that allows HR practitioners to measure the soft skills of

candidates by means of gameplay behaviours. Completing levels by following game rules can be given as an example to gameplay behaviours (Wear 2018).

While the rise of technology has altered how assessments measure aptitude, it also offers companies the opportunity to set new recruitment norms. As a result of this, companies have recently started to use game based assessment in order to evaluate different perspectives of the workplace just as job skills and individual characteristics (Wear 2018). Different types of game based assessment tools were developed by different companies such as Pymetrics and Owiwi. And the game based assessment developed by Owiwi, which is used in this current study, has a construct validity (Georgiou et al. 2019).

Game based assessments are experienced on the internet in general. And this gives a cost-effective high-volume administration (Maroy 2019). Game based assessment contributes to high commitment during the evaluation by reducing the probability of candidates' leaving the process and increasing the amount of data collected (Toşca et al. 2019). The degree of participants' engagement and interaction with the game determines the quality of the data collected in the gamification system. This builds a dataset which then provides HR material to analyze and report upon so that they may represent the job-related skills of the users as accurately as possible (Landers 2015).

A survey conducted by Cut-E in 2016 shows that 89 percent of HR practitioners would be willing to use 'games' as a part of an attraction campaign, 75 percent of them would use Game-Based Assessment (GBA) in the recruitment process, and 76 percent of them would use gamification in the process of learning and development (Cut-E 2017). In addition to this, 23 percent of job candidates thought that completing an assessment test on a mobile device would provide a fair, accurate testing experience (CEB analysis 2017). Nowadays, many organizations such as Unilever, AXA Group, Deloitte are highly interested in game based assessments (Toşca et al. 2019). More research is needed to test the effectiveness of gamified assessment methods and establish valid and robust theoretical underpinnings to confirm their applicability in human resource management and employee selection settings (Georgiou et al. 2019).

There are 3 considerations when purchasing a game based assessment. These are validation, job appropriateness and skill evaluation limits (Parker 2018). Although game based assessment, which is a highly dynamic field, is engaging and interactive, it can be

also said that it is more costly to implement. Companies must be aware that advantages may not be proportional to the cost. Accordingly, more research is needed (CEB analysis 2017).

Game based assesment, which digitizes the recruitment process, can enhance value proposition and the employee brand of a company for young talents who can enjoy the game and have fun while experiencing a reduced awareness of being measured and lower level of anxiety (PSI 2017). In addition to this, the benefits of game based assesment are also to maximize return of investment (ROI) of HR, to utilize bundling opportunities for the company needs, to enhance candidate experience, to get instant reports with candidate insights and to make hiring process accurate and unbiased (Owiwi 2019). An important part of gamification in recruitment process is attraction. However, whom HR practitioners want to attract is based on whome they want to select. And game based assesments could do both in one flow (Maroy 2019).

According to a case study of Siemens that had new difficulties during their digital transformation process, they needed young talents who just graduated from university and a refreshed employee brand in order to redesign their selection approach. For this, there were 2 crucial improvements. These were “improving their approach to attracting young talents” and “measuring behaviours and mindset rather than just ability in order to improve the talent selection itself”. As a solution, they implemented game-based assesment. The results showed that (Assesment Systems 2018):

- i. 85 percent of candidates reported that they enjoyed game based assesment more than traditional approaches.
- ii. 79 percent perceived it as reflecting well on Siemens brand.
- iii. More talented candidated were identified by means of game based assesment approach. This is because candidates were filtered better since the pass rate increased from 24 percent to 40 percent.

2.6 ATTRACTING AND RETAINING YOUNG TALENT

Businesses are braced and ready for the new wave of emerging young professionals (often referenced as “Generation Y” or “Millenials”) who are beginning to join the

workforce. Some estimates indicate they will occupy about half of the workforce as of 2020, and nearly three quarters of it by 2025. Likewise, just as young people must be prepared to fit the needs of the workforce, the companies who are (and will be) hiring from this pool of prospective workers must also meet the specific needs of the young people. According to a survey, young people (Orange 2016):

- i. Want to seek new challenges
- ii. Enjoy working with teammates
- iii. Want give-and-take feedback continuously
- iv. Want to be continue learning even as integrated workers
- v. Become committed to value proposition of companies
- vi. Want to balance professional and personal life
- vii. Don't want to be loyal and they think of having their own start-up

Retaining and motivating the most talented people presents a challenge for most companies. The current generation of millennials, grown and raised in the digital world, has expectations born out of a life experience shaped and formed by higher doses and familiarity to technology than any generation preceding them. These expectations shape them (through the 24/7 influence of social media and the perpetual presence of new Technologies for example) as much as they, in turn, will shape the business-scape (Ahamad 2019).

Companies need to be competitive not only in the product or service that they deliver, but in beating their competition to the best job candidates. That is, they need to communicate with their top prospects at the right time and right place... in other words, before anyone else does. Innovative recruitment and hiring practices can help them do so. For example, by actively using interactive career pages, unique recruitment processes tailored to the next generation of prospective workers, wisely using social media channels, beacons, conducting job interviews via artificial intelligence and other creative tactics. (Hollan et al. 2007). Although Game Based Assessments (GBA) is just one of these examples, it is one of the most effective means of engaging and attracting new talent. GBA is an assesment tool measuring soft skills (Landers 2015).

3. METHODOLOGY

3.1 POPULATION

The population this study is aimed at (or “targets”) are talented young job seekers who are about to graduate from university on the brink of entering the workforce and the business world. This namely concerns a demographic known as “Generation Y” or “Millenials” who are between 20 and 35 years old (Orange 2016). This is primarily because this group of job-seekers are most likely to be looking for new challenges, experiences and attractive employment opportunities.

3.2 SAMPLE

The sample size of the study consisted of 35 upcoming job seekers from Junior, Senior and postgraduate students of Boğaziçi University, which is one of the most succesful universities in Turkey. These students came from a diverse range of academic departments such as electrical and electronical engineering, computer engineering, civil engineering, industrial engineering, software engineering, computer and educational technology, philosophy, economy, international trade, management, Turkish language and literature, and Mathematics Instruction and primary education. All candidates completed and experienced both assesments. The gender parity amongst this group was nearly equal; 18 of the students were male students and 17 of them were female students. Convenience sampling was used due to volunteers’ availability and easy access. This kind of sampling is contributing to making the process faster or quicker in order to collect the data. This sampling method was the best choice for this study.

Table 3.1: The numbers of students according to their departments

	The number of juniors	The number of seniors	The number of post-graduates
Electrical and electronical engineering		2	
Computer engineering	1	4	
Civil engineering		3	
Industrial engineering	1	2	
Software engineering			1
Computer and educational technology		4	
Philosophy	1	3	
Economy	1	1	
International trade	2	1	
Management	1	2	
Turkish language and literature		2	
Teaching mathematics in primary education	2	1	

3.3 EXPERIMENTAL PROCEDURE

First and foremost, it was necessary to identify which Game-Based Assessment (GBA) to administer. This was particularly difficult given that there are no companies in Turkey who make use of this technology – yet. However, there are some companies abroad (particularly in the UK) who made frequent use of such strategies. One of them is *Owiwi*, and after reaching out to them, I learned that they have a distributor in Turkey. My next step was to contact with Selçuk Bay, the Country Director of Turkey at *Owiwi*. He kindly helped the project by providing us with two trial users (for myself and my thesis advisor) to experience the *Owiwi* assesment tool prior to its administration to the sample population of this study. After the approval of the thesis advisor, it was decided to proceed with the Project using *Owiwi* as the principal the Game-Based Assesment tool. After determining the GBA, it was reasonably simple to convert this nonconventional tool into a traditional assesment tool by using its texts to create a second assesment tool.

Moving forward, The Analytic Hierarchy Process surveys, that would help me measure the perceptions of students about the respective assesment tools and the ‘companies’ offering them, were prepared. Additionally, I incorporated elements from the State-Trait Anxiety Inventory to measure the anxiety of students from a different perspective as a means of cross-checking the accuracy of the main dataset collected.

After preparing the aforementioned surveys and assesment tools, I contacted my postgraduate, senior and junior year friends, who are currently studying in Boğaziçi University. They also referred several of their friends, contacts, and acquaintances as well. In this way, I came together with them and explained, one-by-one what this thesis intended to study and how we would proceed. Then, I sent them a follow-up email, each of which included a unique link of the Game Based Assesment for each student as well as the AHP surveys and State-Trait Anxiety Inventory. The participants proceeded through the next online stage of this process independently because this most reflected how assesment tools are conducted by companies in a real-world setting. Likewise, students were also asked to take state-trait anxiety inventory on their own and to honestly rate their experience on with both the game based assesment test, traditional assesment test, and the corresponding AHP surveys. This process took approximately 25-30 minutes per each student. The most remarkeable aspect of the findings was that, after comparing the two sets of results, there was indeed a statistical difference between how the game based assesment tool and the traditional assesment test within the perceptions of the sample candidates.

4. DATA COLLECTION

The necessary data was gathered by means of Analytic Hierarchy Process (AHP) which is a component of the frameworks of logic prescribed by the *multi-criteria decision making method or numerical decision making method* and “State-Trait Anxiety Inventory” (STAI). Through these means, data was collected from the sample population to evaluate the aptitudes and perspectives of the participants.

4.1 ANALYTIC HIERARCHY PROCESS (AHP)

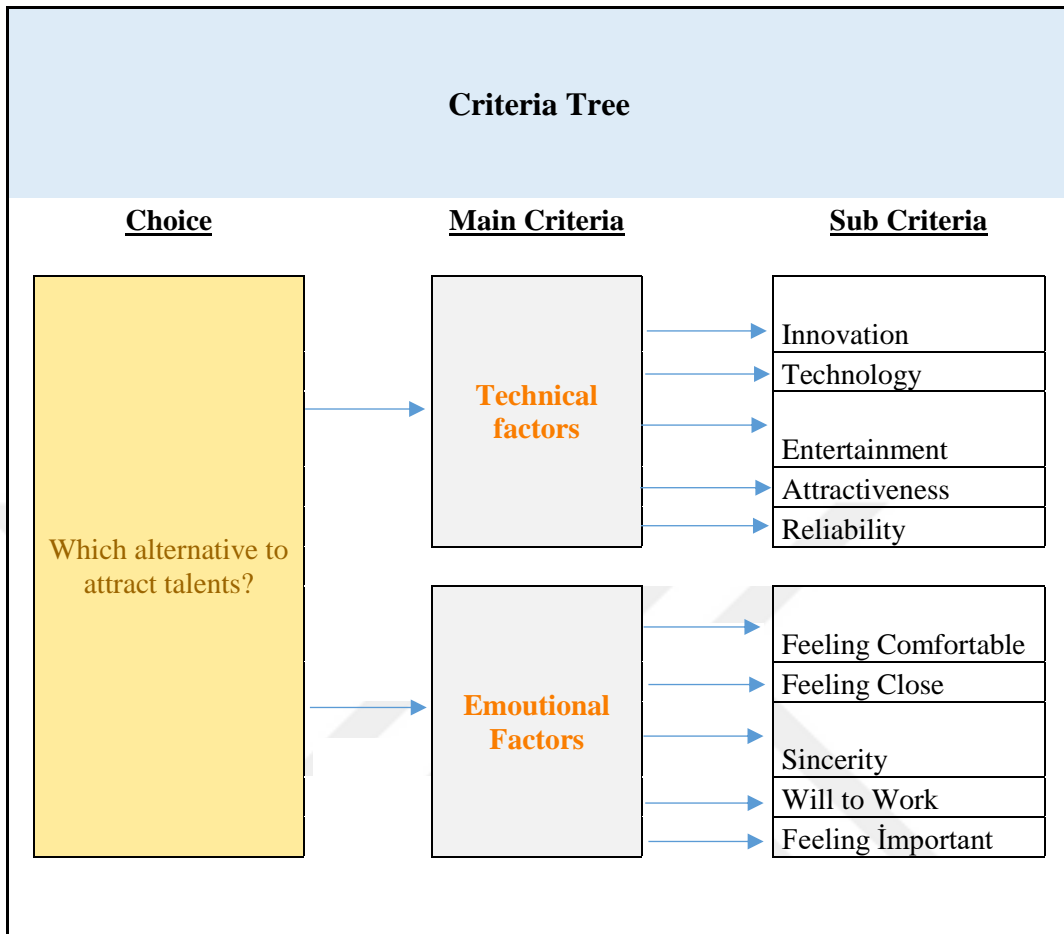
The Analytic Hierarchy Process (AHP) is a *multi-criteria decision-making method* articulated by Thomas Saaty in the 1970s. This method can help incorporate multiple qualitative and quantitative data inputs needed for ordering and selecting alternatives (Saaty 2008).

In this study, we measured the aptitudes and perspectives of individuals with respect towards assesment tools and the ‘companies’ administering them. Using the Analytic Hierarchy Process (AHP), we reached a conclusion about which assesment tools provide an advantage to companies to attract new talents.

To review, participants had two options, Game Based Assesments (GBA) and Traditional Assesments, to define their preferences in terms of ten different criteria: technology, innovation, attractiveness, entertainment, reliability, feeling comfortable, feeling close, sincerity, will to work, feeling important.

To collect this data with the Analytic Hierarchical Process, we needed two surveys. One of them, called “criteria survey”, was used to determine coefficients of the criteria, while the second, titled “alternatives survey,” predominantly compared Game Based Assesment (GBA) and traditional assesment according to these coefficients.

Figure 4.1: Criteria tree



As it is seen in the Figure 4.1: Criteria Tree, criteria are divided into 2 categories, that are technical and emotional factors. Each category contains 5 criteria. This is because, the criteria must be compared according to their relevance to reach correct coefficients.

Figure 4.2: Criteria survey

	Main Criteria	Sub Criteria	Strongly Important	Very Important	Important	Less Important	Equally Important	Less Important	Important	Very Important	Strongly Important	Sub Criteria
			9	7	5	3	1	3	5	7	9	
Criteria	Technical Factors	Technology										Innovation
		Technology										Attractiveness
		Technology										Entertainment
		Technology										Reliability
		Innovation										Attractiveness
		Innovation										Entertainment
		Innovation										Reliability
		Attractiveness										Entertainment
		Attractiveness										Reliability
		Entertainment										Reliability
	Emotional Factors	Feeling Comfortable										Sincerety
		Feeling Comfortable										Feeling Close
		Feeling Comfortable										Will to Work
		Feeling Comfortable										Feeling Important
		Sincerety										Feeling Close
		Sincerety										Will to Work
		Sincerety										Feeling Important
		Feeling Close										Will to Work
		Feeling Close										Feeling Important
		Will to Work										Feeling Important

In the criteria survey, candidates see the criteria such as in the Figure 4.2: Criteria survey. They choose which criteria is more important than other criteria. For example, if “technology” is strongly more important than “innovation”, then the candidate will select the box “9” which is close to “technology”.

Figure 4.3: Alternatives survey

	Game Based Assesment	Strongly Agree	Very Agree	Agree	Less Agree	Equally Agree	Less Agree	Agree	Very Agree	Strongly Agree	Traditional Assesment
		9	7	5	3	1	3	5	7	9	
Alternatives	I think the company which provides game base assesment has a fun environment										I think the company which provides traditional assesment test has a fun environment
	I think the results of game base assesment are reliable										I think the results of traditional assesment test are reliable
	I think the company which provides game base assesment is innovative										I think the company which provides traditional assesment test is innovative
	I think the company which provides game base assesment is attractive										I think the company which provides traditional assesment test is attractive
	I think the company which provides game base assesment has a comfortable workplace										I think the company which provides traditional assesment test has a comfortable workplace
	I think the company which provides game base assesment is technological										I think the company which provides traditional assesment test is technological
	I think the company which provides game base assesment attaches importance to their employees										I think the company which provides traditional assesment test attaches importance to their employees
	I think the company which provides game base assesment has a sincere workplace										I think the company which provides traditional assesment test has a sincere workplace
	I feel close towards the company which provides game base assesment										I feel close towards the company which provides traditional assesment test
	I would like to work in the company which provides game base assesment										I would like to work in the company which provides traditional assesment test

As it can be seen in the Figure 4.3: Alternatives survey, there are 10 comparisons for each criteria. That is, game based assesment and traditional assesment were compared in terms of 10 criteria. Candidates choose which alternatives they prefer in terms of which criteria.

For example, if a candidate thinks that both game based assesment and traditional assesment tests are equally reliable, then he or she choose box “1” in the middle.

Figure 4.4: Match-up of items of criteria and alternatives survey

Items of Criteria Survey	Items of Alternatives Survey
Entertainment	I think the company which provides game base assesment has a fun environment
	I think the company which provides traditional assesment test has a fun environment
Reliability	I think the results of game base assesment are reliable
	I think the results of traditional assesment test are reliable
Innovation	I think the company which provides game base assesment is innovative
	I think the company which provides traditional assesment test is innovative
Attractiveness	I think the company which provides game base assesment is attractive
	I think the company which provides traditional assesment test is attractive
Feeling Comfortable	I think the company which provides game base assesment has a comfortable workplace
	I think the company which provides traditional assesment test has a comfortable workplace
Technology	I think the company which provides game base assesment is technological
	I think the company which provides traditional assesment test is technological
Feeling Important	I think the company which provides game base assesment attaches importance to their employees
	I think the company which provides traditional assesment test attaches importance to their employees
Sincerety	I think the company which provides game base assesment has a sincere workplace
	I think the company which provides traditional assesment test has a sincere workplace
Feeling Close	I feel close towards the company which provides game base assesment
	I feel close towards the company which provides traditional assesment test
Will to Work	I would like to work in the company which provides game base assesment
	I would like to work in the company which provides traditional assesment test

In the Figure 4.4: Match-up of items of criteria and alternatives survey, it can be seen how items in criteria survey and alternatives survey match-up. In other words, the explanations of items in criteria survey can be looked at.

4.2 STATE-TRAIT ANXIETY INVENTORY (STAI)

Anxiety is one of the key factors that have a big role on people’s successes and accordingly their impressions. This is why, it is important to evaluate their anxiety levels while experiencing the assesment inventories in order to get a right outcome (Özben 1991).

Spielberg and his colleagues aimed to separately study on State and Trait Anxiety Inventories by improving them in 1970. Öner and Le Compte translated it in Turkish. State-Trait Anxiety Inventory includes 2 different tests and consists of 40 questions. State Anxiety Inventory consist of 4 point likert scale, orderly 1 (none), 2 (few), 3 (mostly), 4 (completely). It is aimed to evaluate the level of emotions and behaviours on the inventory, selected by participants. Trait Anxiety Inventory consist of 4 point likert scale, orderly 1(never), 2(sometimes), 3(often), 4(always). This inventory evaluates the frequency of emotions and behaviours in the life of participants. Additionally, it was proven that the Turkish version of State-Trait Anxiety Inventory is valid according to Kuder Richardson 20, item reliability and test reliability technics (Yiğit et al. 2011).

In this study, there were 35 participants, who took firstly State Anxiety Inventory and then Trait Anxiety Inventory. The data analysis was made on excel according to it's calculation rules. That is, there are direct and indirect items. The values of indirect items, which represents positive feelings, becomes opposite. This means that if the value is 4, then it is counted as 1 or vice versa. The values of direct items are as it is.

In State Anxiety Inventory, there are 10 indirect items which are the 1st, 2nd, 5th, 8th, 10th, 11th, 15th, 16th, 19th, and 20th. And in Trait Anxiety Inventory, there are 7 indirect items that are the 21st, 26th, 27th, 30th, 33th, 36th and 39th. Both inventory is calculated seperately. For each inventory, total score of direct items is subtracted from total score of indirect items. Then a constant value is added to the final score. This constant value is 50 for State Anxiety Inventory and 38 for Trait Anxiety Inventory. The scores are between 20 (Low Anxiety) and 80 (High Anxiety). The average score is 36 and 41 (Kartopu 2012). The scores of all participants in this study were around average score.

Figure 4.5: STAI Form Y-1

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1		Not at all	Somewhat	Moderately so	Very much so
1	I feel calm	1	2	3	4
2	I feel secure	1	2	3	4
3	I am tense	1	2	3	4
4	I feel strained	1	2	3	4
5	I feel at ease	1	2	3	4
6	I feel upset	1	2	3	4
7	I am presently worrying over possible misfortunes	1	2	3	4
8	I feel satisfied	1	2	3	4
9	I feel frightened	1	2	3	4
10	I feel comfortable	1	2	3	4
11	I feel self-confident	1	2	3	4
12	I feel nervous	1	2	3	4
13	I am jittery	1	2	3	4
14	I feel indecisive	1	2	3	4
15	I am relaxed	1	2	3	4
16	I feel content	1	2	3	4
17	I am worried	1	2	3	4
18	I feel confused	1	2	3	4
19	I feel steady	1	2	3	4
20	I feel pleasant	1	2	3	4

As it is seen in the Figure 4.5: STAI Form Y-1, the first form, which consists of 20 items, was prepared to measure state anxiety level of candidates.

Figure 4.6: STAI Form Y-2

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-2		Not at all	Somewhat	Moderately so	Very much so
21	I feel pleasant	1	2	3	4
22	I feel nervous and restless	1	2	3	4
23	I feel satisfied with myself	1	2	3	4
24	I wish I could be as happy as others seem to be	1	2	3	4
25	I feel like a failure	1	2	3	4
26	I feel rested	1	2	3	4
27	I am "calm, cool, and collected"	1	2	3	4
28	I feel that difficulties are piling up so that I can not overcome them	1	2	3	4
29	I worry too much over something that really doesn't matter	1	2	3	4
30	I am happy	1	2	3	4
31	I have disturbing thoughts	1	2	3	4
32	I lack self-confidence	1	2	3	4
33	I feel secure	1	2	3	4
34	I make decisions easily	1	2	3	4
35	I feel inadequate	1	2	3	4
36	I am content	1	2	3	4
37	Some unimportant thought runs through my mind and bothers me	1	2	3	4
38	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
39	I am a steady person	1	2	3	4
40	I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

As it is seen in the Figure 4.6: STAI Form Y-2, the second form, which also consists of 20 items, was prepared to measure trait anxiety level of candidates.

5. FINDINGS

5.1 ANALYTIC HIERARCHY PROCESS

5.1.1 Criteria Survey

It is significant to measure the coefficients among criteria in terms of comparing the alternatives. Therefore, criteria survey was used to collect the data in terms of this. After collecting data, consistency analysis was conducted and consistent responses was considered. If the consistency ratio is equal to or smaller than “0.1”, then the responses are consistent. Otherwise, they are inconsistent.

8 of 35 responses were inconsistent. Therefore, 27 responses were considered to determine the coefficients of criteria.

5.1.1.1 Consistent response

Figure 5.1: An example to consistent criteria survey

	Main Criteria	Sub Criteria	Strongly Important	Very Important	Important	Less Important	Equally Important	Less Important	Important	Very Important	Strongly Important	Sub Criteria	
			9	7	5	3	1	3	5	7	9		
Criteria	Technical Factors	Technology					*					Innovation	
		Technology					*					Attractiveness	
		Technology						*				Entertainment	
		Technology							*			Reliability	
		Innovation						*				Attractiveness	
		Innovation						*				Entertainment	
		Innovation						*				Reliability	
		Attractiveness					*					Entertainment	
		Attractiveness							*			Reliability	
		Entertainment								*		Reliability	
	Emotional Factors	Feeling Comfortable					*						Sincerety
		Feeling Comfortable					*						Feeling Close
		Feeling Comfortable						*					Will to Work
		Feeling Comfortable						*					Feeling Important
		Sincerety					*						Feeling Close
		Sincerety					*						Will to Work
		Sincerety					*						Feeling Important
		Feeling Close					*						Will to Work
		Feeling Close					*						Feeling Important
		Will to Work					*						Feeling Important

It can be clearly seen how data was collected from candidates in the Figure 5.1: An example to consistent criteria survey, which belongs to one of the candidates whose responses are consistent.

Table 5.1: An example to consistency analysis of technical factors - consistent

Technical Factors											
	Technology	Innovation	Attractiveness	Entertainment	Reliability						Coeffients
Technology	1	1,00	1,00	0,33	0,20	0,0909	0,0909	0,1200	0,0435	0,1034	0,0897
Innovation	1	1	0,33	0,33	0,33	0,0909	0,0909	0,0400	0,0435	0,1724	0,0875
Attractiveness	1	3	1	1	0,20	0,0909	0,2727	0,1200	0,1304	0,1034	0,1435
Entertainment	3	3	1	1	0,20	0,2727	0,2727	0,1200	0,1304	0,1034	0,1799
Reliability	5	3	5	5	1	0,4545	0,2727	0,6000	0,6522	0,5172	0,4993
Toplam	11,00	11,00	8,33	7,67	1,93						1,0000

Calculation for Consistency			
Cross-Product		Consistency Index	Consistency Ratio
0,48062	5,35514	0,094526111	0,084398314
0,45153	5,15783		
0,77561	5,40483		
0,95511	5,31009		
2,82757	5,66263		
Average	5,3781		
Consistent			

As it is seen in the Table 5.1: An example to consistency analysis of technical factors – consistent, consistency analysis was applied on a candidate’s responses on the technical factors. Firstly, the values on the “Figure 5.1” were written on a table such as the “Table 5.1”. Then, every value was divided by it’s row sum and written next to it. Later, the coeffients were calculated by taking aritmetic mean of the row sum of each criteria. For example, the coefficient of technology was calculated by dividing 1 into 11 and then aritmetic mean of the row sum was averaged as the Equation 5.1:

$$(0,09090 + 0,0909 + 0,1200 + 0,0435 + 0,1034)/5 \tag{5.1}$$

After finding the coefficients, then the cross product of coefficients and criteria value was calculated. For example, 0,48062 in Cross-Product column was found by the Equation 5.2:

$$(0,0897*1+0,0875*1+0,1435*1+0,1799*0,33+0,4993*0,20) \quad (5.2)$$

Then, cross product values were divided by coefficients and the results were summed. Later, the arithmetic mean of the sum was taken and consistency index was calculated by subtracting the final arithmetic mean from criteria number and dividing this value into the result coming from criteria number minus 1.

To find out if this is consistent, consistency ratio was calculated by dividing consistency index into core value which is 1,12 for 5 criteria. As a result of this, the consistency ratio was calculated as 0,084. Since this ratio is smaller than 0.1, it ends up as "Consistent". This calculation process goes for each criteria survey.

According to the responses of this candidate, the coefficients of technical factors which are technology, innovation, attractiveness, entertainment and reliability are respectively 0,0897, 0,0875, 0,1435, 0,1799 and 0,4993. This shows that reliability is the most important factor while innovation is the least important one.

Table 5.2: An example to consistency analysis of emotional factors - consistent

Emotional Factors											
	Feeling Comfortable	Sincerety	Feeling Close	Will to Work	Feeling Important						Coefficients
Feeling Comfortable	1	1,00	1,00	0,33	3,00	0,1579	0,2000	0,2000	0,0769	0,4286	0,2127
Sincerety	1	1	1,00	1,00	1,00	0,1579	0,2000	0,2000	0,2308	0,1429	0,1863
Feeling Close	1	1	1	1	1,00	0,1579	0,2000	0,2000	0,2308	0,1429	0,1863
Will to Work	3	1	1	1	1,00	0,4737	0,2000	0,2000	0,2308	0,1429	0,2495
Feeling Important	0,33333	1	1	1	1	0,0526	0,2000	0,2000	0,2308	0,1429	0,1653
Toplam	6,33	5,00	5,00	4,33	7,00						1,0000

Calculation for Consistency			
Cross-Product		Consistency Index	Consistency Ratio
1,1642	5,47398	0,105810621	0,094473769
1	5,36756		
1	5,36756		
1,42536	5,71372		
0,85821	5,19338		
Average	5,42324		
Consistent			

As it is seen in the Table 5.2: An example to consistency analysis of emotional factors – consistent, consistency analysis was applied on a candidate’s responses on the technical factors. It was important to find consistency index and ratio to find as small as they were in terms of consistency. Although the consistency index of this example was bigger than 0.1, the consistency ratio was calculated as 0,094 when it is divided by core value. Since this ratio is smaller than 0.1, it ends up as “Consistent”.

According to the responses of this candidate, the coefficients of emotional factors which are feeling comfortable, sincerity, feeling close, will to work and feeling important are respectively 0,2127, 0,1863, 0,1863, 0,2495 and 0,1653. This remarks that will to work is the most important factor while feeling important is the least important one.

5.1.1.2 Inconsistent response

Figure 5.2: An example to inconsistent criteria survey

	Main Criteria	Sub Criteria	Strongly Important	Very Important	Important	Less Important	Equally Important	Less Important	Important	Very Important	Strongly Important	Sub Criteria	
			9	7	5	3	1	3	5	7	9		
Criteria	Technical Factors	Technology							*			Innovation	
		Technology		*									Attractiveness
		Technology		*									Entertainment
		Technology										*	Reliability
		Innovation			*								Attractiveness
		Innovation			*								Entertainment
		Innovation										*	Reliability
		Attractiveness	*										Entertainment
		Attractiveness										*	Reliability
		Entertainment										*	Reliability
	Emotional Factors	Feeling Comfortable		*									Sincerety
		Feeling Comfortable		*									Feeling Close
		Feeling Comfortable			*								Will to Work
		Feeling Comfortable					*						Feeling Important
		Sincerety		*									Feeling Close
		Sincerety		*									Will to Work
		Sincerety		*									Feeling Important
		Feeling Close		*									Will to Work
		Feeling Close		*									Feeling Important
		Will to Work		*									Feeling Important

It can be clearly seen how data was collected from candidates in the Figure 5.2: An example to inconsistent criteria survey, which belongs to one of the candidates whose responses are inconsistent.

Table 5.3: An example to consistency analysis of technical factors - inconsistent

Technical Factors											
	Technology	Innovation	Attractiveness	Entertainment	Reliability						Coefficients
Technology	1	0,20	7,00	7,00	0,11	0,0654	0,0191	0,2903	0,2121	0,0769	0,1328
Innovation	5	1	7,00	7,00	0,11	0,3271	0,0954	0,2903	0,2121	0,0769	0,2004
Attractiveness	0,14286	0,14286	1	9	0,11	0,0093	0,0136	0,0415	0,2727	0,0769	0,0828
Entertainment	0,14286	0,14286	0,11111	1	0,11	0,0093	0,0136	0,0046	0,0303	0,0769	0,0270
Reliability	9	9	9	9	1	0,5888	0,8583	0,3733	0,2727	0,6923	0,5571
Toplam	15,29	10,49	24,11	33,00	1,44						1,0000

Calculation for Consistency			
Cross-Product		Consistency Index	Consistency Ratio
1,0032	7,55581	0,491154936	0,438531193
1,69458	8,45738		
0,43496	5,25189		
0,14565	5,40236		
4,54336	8,15565		
Average	6,96462		
Inconsistent			

As it is seen in the Table 5.3: An example to consistency analysis of technical factors – inconsistent, consistency analysis was applied on a candidate’s responses on the technical factors. The consistency ratio was calculated as 0,4385. Since this ratio was bigger than 0.1, it ended up as “Inconsistent”. In other words, this candidate’s responses were inconsistent so these responses were not considered for geometrical analysis.

When it comes to the responses of this candidate although it was not included in calculation, the coefficients of technical factors which are technology, innovation, attractiveness, entertainment and reliability are respectively 0,1328, 0,2004, 0,0828, 0,0270 and 0,5571. This shows that reliability is the most important factor while entertainment is the least important one.

Table 5.4: An example to consistency analysis of emotional factors - inconsistent

Emotional Factors											
	Technology	Innovation	Attractiveness	Entertainment	Reliability						Coefficients
Technology	1	7,00	7,00	5,00	1,00	0,4023	0,8305	0,4579	0,2482	0,0435	0,3965
Innovation	0,14286	1	7,00	7,00	7,00	0,0575	0,1186	0,4579	0,3475	0,3043	0,2572
Attractiveness	0,14286	0,14286	1	7	7,00	0,0575	0,0169	0,0654	0,3475	0,3043	0,1583
Entertainment	0,2	0,14286	0,14286	1	7,00	0,0805	0,0169	0,0093	0,0496	0,3043	0,0921
Reliability	1	0,14286	0,14286	0,14286	1	0,4023	0,0169	0,0093	0,0071	0,0435	0,0958
Toplam	2,49	8,43	15,29	20,14	23,00						1,0000

Calculation for Consistency			
Cross-Product		Consistency Index	Consistency Ratio
3,86176	9,73983	1,048248936	0,93593655
2,73809	10,6464		
1,5676	9,90014		
0,90164	9,78451		
0,56485	5,89411		
Average	9,193		
Inconsistent			

As it is seen in the Table 5.4: An example to consistency analysis of emotional factors – inconsistent, consistency analysis was applied on a candidate’s responses on the technical factors. The consistency ratio was calculated as 0,9359. Since this ratio is bigger than 0.1, it ends up as “Inconsistent”.

When it comes to the responses of this candidate although it was not included in calculation, the coefficients of technical factors which are feeling comfortable, sincerity, feeling close, will to work and feeling important are respectively 0,3965, 0,2572, 0,1583, 0,0921 and 0,0958. This shows that feeling comfortable is the most important factor while will to work is the least important one.

5.1.1.3 Geometrical analysis

It has been figured out which responses are consistent so far. After this analysis, geometrical analysis instead of arithmetic analysis was used for calculating 25 consistent responses since arithmetic analysis does not reflect the true results due to rational increase in values (Saaty 2008). This calculation created only one table, that represents consistent responses. Lastly, a final consistency analysis is conducted. Coefficient values at the end of this analysis was the final values which was included in calculation of comparing the alternatives.

Table 5.5: Consistency analysis for technical factors on geometrical analysis

Technical Factors											
	Technology	Innovation	Attractiveness	Entertainment	Reliability						Coefficients
Technology	1	0,57	0,47	0,59	0,21	0,0916	0,0715	0,0821	0,0611	0,1060	0,0825
Innovation	1,74132	1	0,54	1,14	0,27	0,1596	0,1245	0,0942	0,1176	0,1345	0,1261
Attractiveness	2,12876	1,85495	1	2,14191	0,31	0,1951	0,2309	0,1747	0,2200	0,1544	0,1950
Entertainment	1,68093	0,87347	0,46687	1	0,21	0,1540	0,1087	0,0816	0,1027	0,1034	0,1101
Reliability	4,36139	3,73031	3,24852	4,85423	1	0,3997	0,4644	0,5675	0,4986	0,5017	0,4864
Toplam	10,91	8,03	5,72	9,74	1,99						1,0000

Calculation for Consistency			
Cross-Product		Consistency Index	Consistency Ratio
0,41476	5,02944	0,010848896	0,009686514
0,63121	5,00708		
0,98992	5,07585		
0,55006	4,99694		
2,48419	5,10766		
Average	5,0434		
Consistent			

As it is seen in the Table 5.5: Consistency analysis for technical factors on geometrical analysis, consistency analysis was applied on geometrical average of 25 consistent responses on the technical factors. As a result, the consistency ratio of geometrical

average was calculated as 0,009. Since this ratio is smaller than 0.1, it ends up as “Consistent”.

According to the geometrical analysis of 25 consistent responses, the coefficients of technical factors which are technology, innovation, attractiveness, entertainment and reliability are respectively 0,0825, 0,1261, 0,1950, 0,1101 and 0,4864. This shows that reliability is the most important factor while technology is the least important one.

Table 5.6: Consistency analysis for emoutional factors of geometrical analysis

Emoutional Factors											
	Feeling Comfortable	Sincerety	Feeling Close	Will to Work	Feeling Important						Coeffients
Feeling Comfortable	1	1,19	1,94	0,39	0,55	0,1493	0,1572	0,1739	0,1330	0,1590	0,1545
Sincerety	0,83927	1	1,40	0,41	0,44	0,1253	0,1319	0,1252	0,1394	0,1274	0,1298
Feeling Close	0,51466	0,71525	1	0,34133	0,26	0,0768	0,0943	0,0895	0,1151	0,0737	0,0899
Will to Work	2,5349	2,41853	2,92971	1	1,23	0,3785	0,3190	0,2623	0,3372	0,3524	0,3299
Feeling Important	1,80847	2,25644	3,89985	0,81591	1	0,2700	0,2976	0,3491	0,2752	0,2875	0,2959
Toplam	6,70	7,58	11,17	2,97	3,48						1,0000

Calculation for Consistency			
Cross-Product		Consistency Index	Consistency Ratio
0,77764	5,03371	0,00701042	0,006259304
0,65273	5,02694		
0,45075	5,01353		
1,66156	5,03694		
1,48803	5,02908		
Average	5,02804		
Consistent			

As it is seen in the Table 5.6: Consistency analysis for emoutional factors on geometrical analysis, consistency analysis was applied on geometrical average of 25 consistent responses on the emoutional factors. As a result, the consistency ratio of geometrical

average was calculated as 0,006. Since this ratio is smaller than 0.1, it ends up as “Consistent”.

According to the geometrical analysis of 25 consistent responses, the coefficients of technical factors which are feeling comfortable, sincerity, feeling close, will to work and feeling important are respectively 0,1545, 0,1298, 0,0899, 0,3299 and 0,2959. This shows that will to work is the most important factor while feeling close is the least important one.

5.1.2 Alternatives Survey

When it comes to alternatives survey, not only candidates whose responses were consistent but also the ones whose responses were inconsistent were taken into consideration. This means that the responses of 35 talents were counted on.

When it comes to how to calculate Alternatives Survey, geometrical analysis of every item is calculated and then the results are written on a table such as the “Table 5.7”. Later, which alternative is more advantageous is found out.

Figure 5.3: An example to alternatives survey

	Game Based Assesment	Likert Scale									Traditional Assesment
		Strongly Agree	Very Agree	Agree	Less Agree	Equally Agree	Less Agree	Agree	Very Agree	Strongly Agree	
		9	7	5	3	1	3	5	7	9	
Alternatives	I think the company which provides game base assesment has a fun environment			*							I think the company which provides traditional assesment test has a fun environment
	I think the results of game base assesment are reliable				*						I think the results of traditional assesment test are reliable
	I think the company which provides game base assesment is innovative			*							I think the company which provides traditional assesment test is innovative
	I think the company which provides game base assesment is attractive		*								I think the company which provides traditional assesment test is attractive
	I think the company which provides game base assesment has a comfortable workplace			*							I think the company which provides traditional assesment test has a comfortable workplace
	I think the company which provides game base assesment is technological		*								I think the company which provides traditional assesment test is technological
	I think the company which provides game base assesment attaches importance to their employees			*							I think the company which provides traditional assesment test attaches importance to their employees
	I think the company which provides game base assesment has a sincere workplace				*						I think the company which provides traditional assesment test has a sincere workplace
	I feel close towards the company which provides game base assesment					*					I feel close towards the company which provides traditional assesment test
	I would like to work in the company which provides game base assesment			*							I would like to work in the company which provides traditional assesment test

It can be clearly seen how data was collected from candidates in the Figure 5.3: An example to alternatives survey, which was filled by a candidate.

Geometrical average of each item, which is responded by 35 candidates, was calculated seperately and then the analysis was conducted for each item.

Table 5.7: Analysis of geometrical average of the first item in the survey

1) Entertainment					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	3,42	0,773935824	0,773935824	0,7739
Traditional Assesment	0,29	1	0,226064176	0,226064176	0,2261
Row Sum	1,29	4,42			

As it is showed in the Table 5.7: Analysis of geometrical average of the first item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “entertainment”. The result shows that 77 percent of candidates think that the companies, which provide game based assesment, have a more fun environment while 23 percent of them think that the companies, which provide traditional assesment test, have a more fun environment.

Table 5.8: Analysis of geometrical average of the second item in the survey

2) Reliability					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	2,40	0,705825443	0,705825443	0,7058
Traditional Assesment	0,42	1	0,294174557	0,294174557	0,2942
Row Sum	1,42	3,40			

As it is showed in the Table 5.8: Analysis of geometrical average of the second item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “reliability”. The result shows that 71 percent of candidates think that the results of game based assesment are more reliable while 29 percent of them think that the results of traditional assesment test are more reliable.

Table 5.9: Analysis of geometrical average of the third item in the survey

3) Innovation					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	4,10	0,804072064	0,804072064	0,8041
Traditional Assesment	0,24	1	0,195927936	0,195927936	0,1959
Row Sum	1,24	5,10			

As it is showed in the Table 5.9: Analysis of geometrical average of the third item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “innovation”. The result shows that 80 percent of candidates think that the companies, which provide game based assesment, are more innovative while 20 percent of them think that the companies, which provide traditional assesment test, are more innovative.

Table 5.10: Analysis of geometrical average of the fourth item in the survey

4) Attractiveness					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	3	0,75	0,75	0,7500
Traditional Assesment	0,33	1	0,25	0,25	0,2500
Row Sum	1,33	4,00			

As it is showed in the Table 5.10: Analysis of geometrical average of the fourth item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “attractiveness”. The result shows that 75 percent of candidates think that the companies, which provide game based assesment, are more attractive while 25 percent of them think that the companies, which provide traditional assesment test, are more attractive.

Table 5.11: Analysis of geometrical average of the fifth item in the survey

5) Feeling Comfortable					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	3,40	0,772594793	0,772594793	0,7726
Traditional Assesment	0,29	1	0,227405207	0,227405207	0,2274
Row Sum	1,29	4,40			

As it is showed in the Table 5.11: Analysis of geometrical average of the fifth item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “feeling comfortable”. The result shows that 77 percent of candidates think that the companies, which provide game based assesment, have a more comfortable workplace while 23 percent of them think that the companie, which provide traditional assesment test, have a more comfortable workplace.

Table 5.12: Analysis of geometrical average of the sixth item in the survey

6) Technology					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	5,21	0,838932161	0,838932161	0,8389
Traditional Assesment	0,19	1	0,161067839	0,161067839	0,1611
Row Sum	1,19	6,21			

As it is showed in the Table 5.12: Analysis of geometrical average of the sixth item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “technology”. The result shows that 84 percent of candidates think that the companies, which provide game based assesment, are more technological while

26 percent of them think that the companies, which provide traditional assesment test, are more technological.

Table 5.13: Analysis of geometrical average of the seventh item in the survey

7) Feeling Important					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	2,26	0,693092204	0,693092204	0,6931
Traditional Assesment	0,44	1	0,306907796	0,306907796	0,3069
Row Sum	1,44	3,26			

As it is showed in the Table 5.13: Analysis of geometrical average of the seventh item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “feeling important”. The result shows that 69 percent of candidates think that the companies, which provide game based assesment, attach more importance to their employees while 31 percent of them think that the companies, which provide traditional assesment test, attach more importance to their employees.

Table 5.14: Analysis of geometrical average of the eighth item in the survey

8) Sincerety					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	1,68	0,626512962	0,626512962	0,6265
Traditional Assesment	0,60	1	0,373487038	0,373487038	0,3735
Row Sum	1,60	2,68			

As it is showed in the Table 5.14: Analysis of geometrical average of the eighth item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “sincerety”. The result shows that 63 percent of candidates

think that the companies, which provide game based assesment, are more sincere towards their employees while 37 percent of them think that the companies, which provide traditional assesment test, are more sincere towards their employees.

Table 5.15: Analysis of geometrical average of the ninth item in the survey

9) Feeling Close					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	2,25	0,692006213	0,692006213	0,6920
Traditional Assesment	0,45	1	0,307993787	0,307993787	0,3080
Row Sum	1,45	3,25			

As it is showed in the Table 5.15: Analysis of geometrical average of the ninth item in the survey, an analysis was conducted over the geometrical average of responses given by 35 candidates for the item “feeling close”. The result shows that 69 percent of candidates feel closer to the companies, which provide game based assesment while 31 percent of them feel closer to the companies, which provide traditional assesment test.

Table 5.16: Analysis of geometrical average of the tenth item in the survey

10) Will to Work					
	Game Based Assesment	Traditional Assesment	GBA / Row Sum	Tradional / Row Sum	(GBA + Traditional) / 2
Game Based Assesment	1	2,30	0,697141739	0,697141739	0,6971
Traditional Assesment	0,43	1	0,302858261	0,302858261	0,3029
Row Sum	1,43	3,30			

As it is showed in the Table 5.16: Analysis of geometrical average of the tenth item in the survey, an analysis was conducted over the geometrical average of responses given by 35

candidates for the item “will to work”. The result shows that 70 percent of candidates would like to work in the companies, which provide game based assesment while 30 percent of them would like to work in the companies, which provide traditional assesment test.

Table 5.17: Calculation for preferability status of companies per criteria

Preferability status of companies, offering Game Based Assessment and Traditional Assesment, based on criteria										
Assesments	Entertainment	Reliability	Innovation	Attractiveness	Feeling Comfortable	Technology	Feeling Important	Sincerety	Feeling Close	Will to Work
Game Based Assesment	0,7739	0,7058	0,8041	0,7500	0,7726	0,8389	0,6931	0,6265	0,6920	0,6971
Traditional Assesment	0,2261	0,2942	0,1959	0,2500	0,2274	0,1611	0,3069	0,3735	0,3080	0,3029

In the Table 5.17: Calculation for preferability status of companies per criteria, the comparison of alternatives in terms of criteria can be seen.

Table 5.18: Percentage of preferability status of companies based on criteria

Preferability status of companies, offering Game Based Assessment and Traditional Assesment, based on criteria										
Assesments	Entertainment	Reliability	Innovation	Attractiveness	Feeling Comfortable	Technology	Feeling Important	Sincerety	Feeling Close	Will to Work
Game Based Assesment	77,39%	70,58%	80,41%	75,00%	77,26%	83,89%	69,31%	62,65%	69,20%	69,71%
Traditional Assesment	22,61%	29,42%	19,59%	25,00%	22,74%	16,11%	30,69%	37,35%	30,80%	30,29%

In the Table 5.18: Percentage of preferability status of companies based on criteria, it can be seen that using game based assesment tool is more adventegous for companies. This is because it has a more positive image and perception in students' mind in terms of entertainment, reliability, innovation, attractiveness, feeling comfortable, technology, feeling important, sincerety, feeling close and will to work. For example, companies offering game based assesment is 77,39 percent more advantegous than the companies offering traditional assesment test.

5.1.3 Cross-Product of Criteria and Alternatives Survey

In order to come up with a overall conclusion, cross-product on criteria and alternatives surveys was calculated.

Table 5.19: Cross-Product of results of criteria and alternatives survey

Preferability status of companies, offering Game Based Assessment and Traditional Assesment, based on criteria										
Assesments	Entertainment	Reliability	Innovation	Attractiveness	Feeling Comfortable	Technology	Feeling Important	Sincerety	Feeling Close	Will to Work
Game Based Assesment	0,7739	0,7058	0,8041	0,7500	0,7726	0,8389	0,6931	0,6265	0,6920	0,6971
Traditional Assesment	0,2261	0,2942	0,1959	0,2500	0,2274	0,1611	0,3069	0,3735	0,3080	0,3029

Coefficients of Criteria	
Entertainment	0,1101
Reliability	0,4864
Innovation	0,1261
Attractiveness	0,1950
Feeling Comfortable	0,1545
Technology	0,0825
Feeling Important	0,2959
Sincerety	0,1298
Feeling Close	0,0899
Will to Work	0,3299

Preferability status of companies, which offer game based assesment and traditional assesment test, and coefficient values of all criteria in both technical and emoutional factors are seen in the Table 5.19: Cross-Product of results of criteria and alternatives survey. According to this table, it can be said that the most important factor is reliability for the candidates with the 0,4864 coeffient value. And the rest is respectively listed as will to work, feeling important, attractiveness, feeling comfortable, sincerety, innovation, entertainment, feeling close and technology.

Table 5.20: Percentage of cross-product of results of criteria and alternatives survey

Preferability status of companies, offering Game Based Assessment and Traditional Assessment, based on criteria											
Assesments	Entertainment	Reliability	Innovation	Attractiveness	Feeling Comfortable	Technology	Feeling Important	Sincerety	Feeling Close	Will to Work	Sum
Game Based Assesment	0,0852	0,3433	0,1014	0,1463	0,1194	0,0692	0,2051	0,0814	0,0622	0,2300	1,4433
Traditional Assesment	0,0249	0,1431	0,0247	0,0488	0,0351	0,0133	0,0908	0,0485	0,0277	0,0999	0,5567

Tools	Sum	Percentage
Game Based Assesment	1,443	72%
Traditional Assesment	0,557	28%

In the Table 5.20: Percentage of cross-product of results of criteria and alternatives survey, cross-product ratio can be seen. This ratio means that game based assesment tool has a more positive image than traditional assesment tool in the mind of 72 percent of candidates. In other words, companies, which offer game based assesment tests, are 72 percent more advantageous than companies, that offer traditional assesment tests, in terms of attracting talents.

5.2 STATE-TRAIT ANXIETY INVENTORY (STAI)

State-Trait Anxiety Inventory includes 2 forms, and each form has direct and indirect items.

Figure 5.4: Indirect items on STAI Form Y-1

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1		Not at all	Somewhat	Moderately so	Very much so
1	I feel calm	4	3	2	1
2	I feel secure	4	3	2	1
3	I am tense	1	2	3	4
4	I feel strained	1	2	3	4
5	I feel at ease	4	3	2	1
6	I feel upset	1	2	3	4
7	I am presently worrying over possible misfortunes	1	2	3	4
8	I feel satisfied	4	3	2	1
9	I feel frightened	1	2	3	4
10	I feel comfortable	4	3	2	1
11	I feel self-confident	4	3	2	1
12	I feel nervous	1	2	3	4
13	I am jittery	1	2	3	4
14	I feel indecisive	1	2	3	4
15	I am relaxed	4	3	2	1
16	I feel content	4	3	2	1
17	I am worried	1	2	3	4
18	I feel confused	1	2	3	4
19	I feel steady	4	3	2	1
20	I feel pleasant	4	3	2	1

As seen in the Figure 5.4: Indirect items on STAI Form Y-1, indirect items of state anxiety inventory are indicated as “4-3-2-1”. These items are the 1st, 2nd, 5th, 8th, 10th, 11th, 15th, 16th, 19th, and 20th items.

Figure 5.5: Indirect items on STAI Form Y-2

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-2		Not at all	Somewhat	Moderately so	Very much so
21	I feel pleasant	4	3	2	1
22	I feel nervous and restless	1	2	3	4
23	I feel satisfied with myself	4	3	2	1
24	I wish I could be as happy as others seem to be	1	2	3	4
25	I feel like a failure	1	2	3	4
26	I feel rested	4	3	2	1
27	I am "calm, cool, and collected"	4	3	2	1
28	I feel that difficulties are piling up so that I can not overcome them	1	2	3	4
29	I worry too much over something that really doesn't matter	1	2	3	4
30	I am happy	4	3	2	1
31	I have disturbing thoughts	1	2	3	4
32	I lack self-confidence	1	2	3	4
33	I feel secure	4	3	2	1
34	I make decisions easily	4	3	2	1
35	I feel inadequate	1	2	3	4
36	I am content	4	3	2	1
37	Some unimportant thought runs through my mind and bothers me	1	2	3	4
38	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
39	I am a steady person	4	3	2	1
40	I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

As seen in the Figure 5.5: Indirect items on STAI Form Y-2, indirect items of state anxiety inventory are showed as “4-3-2-1”. These items are the 21st, 26th, 27th, 30th, 33th, 36th and 39th items.

Figure 5.6: An example to a STAI Form Y-1, filled by a talent

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1		Not at all	Somewhat	Moderately so	Very much so
1	I feel calm	1	2	3	4
2	I feel secure	1	2	3	4
3	I am tense	1	2	3	4
4	I feel strained	1	2	3	4
5	I feel at ease	1	2	3	4
6	I feel upset	1	2	3	4
7	I am presently worrying over possible misfortunes	1	2	3	4
8	I feel satisfied	1	2	3	4
9	I feel frightened	1	2	3	4
10	I feel comfortable	1	2	3	4
11	I feel self-confident	1	2	3	4
12	I feel nervous	1	2	3	4
13	I am jittery	1	2	3	4
14	I feel indecisive	1	2	3	4
15	I am relaxed	1	2	3	4
16	I feel content	1	2	3	4
17	I am worried	1	2	3	4
18	I feel confused	1	2	3	4
19	I feel steady	1	2	3	4
20	I feel pleasant	1	2	3	4

In the Figure 5.6: An example to a STAI Form Y-1, filled by a talent, for an instance, it can be seen how STAI Form Y-1 is filled by a candidate.

Figure 5.7: An example to a STAI Form Y-2, filled by a talent

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-2		Not at all	Somewhat	Moderately so	Very much so
21	I feel pleasant	1	2	3	4
22	I feel nervous and restless	1	2	3	4
23	I feel satisfied with myself	1	2	3	4
24	I wish I could be as happy as others seem to be	1	2	3	4
25	I feel like a failure	1	2	3	4
26	I feel rested	1	2	3	4
27	I am "calm, cool, and collected"	1	2	3	4
28	I feel that difficulties are piling up so that I can not overcome them	1	2	3	4
29	I worry too much over something that really doesn't matter	1	2	3	4
30	I am happy	1	2	3	4
31	I have disturbing thoughts	1	2	3	4
32	I lack self-confidence	1	2	3	4
33	I feel secure	1	2	3	4
34	I make decisions easily	1	2	3	4
35	I feel inadequate	1	2	3	4
36	I am content	1	2	3	4
37	Some unimportant thought runs through my mind and bothers me	1	2	3	4
38	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
39	I am a steady person	1	2	3	4
40	I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

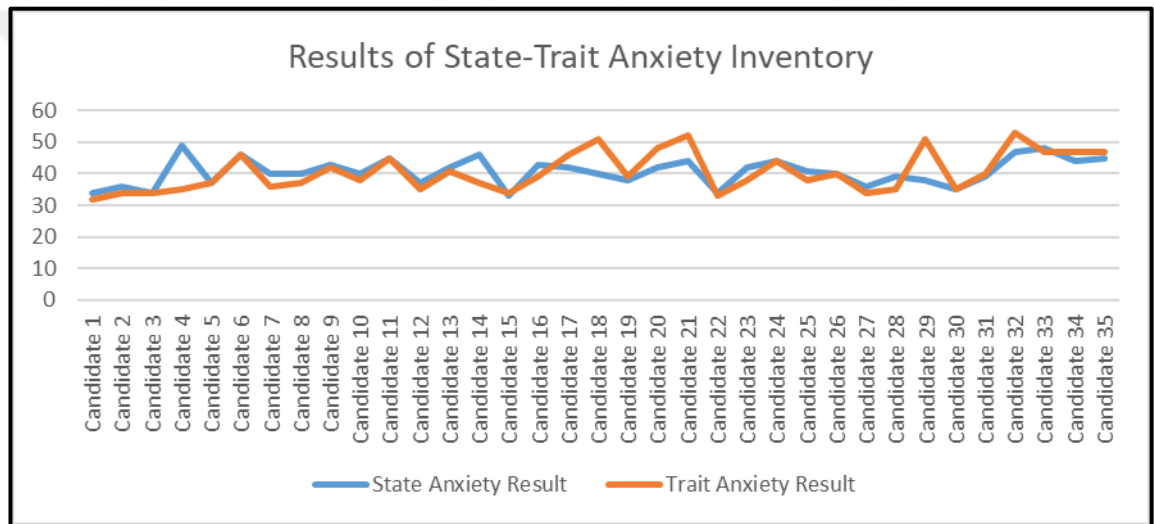
In the Figure 5.7: An example to a STAI Form Y-2, filled by a talent, for an instance, it can be seen how STAI Form Y-2 is filled by a candidate.

Table 5.21: An example to anxiety level of a candidate

	Direct	Indirect	Result	
State	12	25	37	Normal
Trait	18	16	37	Normal

In the Table 5.21: An example to anxiety level of a candidate, for an instance, state and trait anxiety level of a candidate can be observed as “Normal”.

Figure 5.8: State and trait anxiety levels of candidates



In order to come up with a result, both state and trait inventories were calculated separately. For each inventory, total score of direct items is subtracted from total score of indirect items. Then a constant value is added to the final score. This constant value is 50 for State Anxiety Inventory and 38 for Trait Anxiety Inventory. For normal level of anxiety, the scores must be between 20 (low anxiety) and 80 (high anxiety).

As seen in the Figure 5.8: State and trait anxiety levels of candidates, state and trait anxiety levels of all candidates were between 20 and 80, which means normal.

6. DISCUSSION AND CONCLUSION

Due to a rising "Talent Crisis," in the business world companies are adopting increasingly creative ways to remain competitive. They know that they must fight for talented applicants and prospective employees, especially amongst new graduates. In an age where a company's competitive edge depends upon their ability not only to attract and recruit new talented individuals, but to keep them in the company for a long time, companies must search for creative solutions to solve their "Talent Gap."

This study, which analyzes one such solution which has been experimented with by some companies seeking to attract the new, job-seeking graduates, aims to answer the research problem defined as "*Does using game-based assesment provide an advantage to companies in the war of attracting and retaining young talents?*". To learn this, the aptitudes and perspectives of 35 candidates towards companies offering such game based assesment and traditional assesment tools, were measured by means of Analytic Hierarchy Process (AHP). In order to ensure that the data's accuracy collected from candidates, "state-trait anxiety inventory" was also experienced.

During the anaysis of Analytic Hierarchy Process, firstly criteria survey was considered to find out the criteria's coefficients and consistency of candidates' responses. According to the results, 27 of 35 responses were consisted while the rest was inconsisted. After geometrical analysis of these 27 responses, it was seen that the biggest coefficient belonged to "Reliability" criteria. This means that students attach the most importance to whether the test is reliable or not. And the rest was respectively listed as will to work, feeling important, attractiveness, feeling comfortable, sincerety, innovation, entertainment, feeling close and technology. According to this, it can obviously seen that technology is the least important criteria in this list. This also means that only using new technologies are not enough to be preferable. It must be innovative and attractive as well. In any case, it can be also said that this order of importance is what is generally expected from "Generation Y or Millennials" (Orange 2016). Secondly, alternatives survey was considered to compare alternatives in terms of these criteria. The geometrical analysis of each item, which represents each comparison of alternatives in terms of each criteria, was calculated. The results show that companies using game based assesment tools are superior to companies using traditional assesment tests in terms of each criteria. To come

up with a conclusion, a cross-product on the results of criteria and alternatives survey was applied.

This study finally observed that companies using game based assesment tools in recruitment process experienced greater success in attracting the preference of applicants. The companies which offered game based assessment tests witnessed a 72 percent more advantageous situation than companies that offered traditional assessment tests, in terms of attracting individuals in the recruitment process. In other words, *the answer of this study to the research problem is the fact that using game-based assesment provides an advantage to companies in the war of attracting and retaining young talents*. It can be also said that This result is in line with the results in the case study of Siemens, that shows that 79 percent of candidates perceived game based assesment as reflecting well on it's brand.

During the analysis of State-Trait Anxiety Inventory, two forms were considered. One of them was for state anxiety while the other one was for trait anxiety. It was important to find anxiety levels of all students "Normal" on both forms for the data's accuracy. According to the results, all anxiety levels of students were "Normal".

In conclusion, technological improvements have a significant role on attracting and retaining talents as far as it is used in an reliable, effective, attractive and innovative way. Game based assesment tools are a good example to these technological improvements since young talents are more interested in. This is why, using game based assesment in recruitment processes is recommended to companies to attract young talents.

7. LIMITATIONS, STRENGTHS AND RECOMMENDATIONS

One of the main limitations of this study that there is no singular company who specializes in developing Game Based Assessment tests in Turkey. For this reason, I needed to search companies abroad. When I found *Owiwi* (which is a Greek company) it was sheer luck that they had a distributor in Turkey. In addition to this limitation, this research could be done with more than 35 students and from different universities.

Marketing this idea to students to increase the sample population for this study was relatively easy because I gave volunteers the opportunity to see the results (a detailed description of their soft skills) for free once they completed the Game Based Assessment.

One final recommendation (for researchers intending to understand how such strategies can be applicable to Turkish companies), I would recommend future researchers to directly look for a domestic distributor based in Turkey. If no such company exists at that time which is continuing to develop a game based assessment, then alternative will have to be found but this is an option. Regardless, the findings generated by continued research will certainly benefit companies and business wishing to gain a competitive edge in their respective recruitment and hiring processes.

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APPENDICES



APPENDIX-1: STAI Form Y-1

YÖNERGE:Aşağıda kişilerin kendilerine ait duygularını anlatmada kullandıkları bir takım ifadeler verilmiştir. Her ifadeyi okuyun, sonra da o anda nasıl hissettiğinizi ifadelerin sağ tarafındaki parantezlerden uygun olanını işaretlemek suretiyle belirtin. Doğru ya da yanlış cevap yoktur. Herhangi bir ifadenin üzerinde fazla zaman sarf etmeksizin **anında** nasıl hissettiğinizi gösteren cevabı işaretleyin.

		HİÇ	BİRAZ	ÇOK	TAMAMIYLA
1	Şu an çok sakinim	-1	-2	-3	-4
2	Kendimi emniyette hissediyorum	-1	-2	-3	-4
3	Su anda sinirlerim gergin	-1	-2	-3	-4
4	Pişmanlık duygusu içindeyim	-1	-2	-3	-4
5	Şu anda huzur içindeyim	-1	-2	-3	-4
6	Şu anda hiç keyfim yok	-1	-2	-3	-4
7	Başıma geleceklerden endişe ediyorum	-1	-2	-3	-4
8	Kendimi dinlenmiş hissediyorum	-1	-2	-3	-4
9	Şu anda kaygılıyım	-1	-2	-3	-4
10	Kendimi rahat hissediyorum	-1	-2	-3	-4
11	Kendime güvenim var	-1	-2	-3	-4
12	Şu anda asabım bozuk	-1	-2	-3	-4
13	Çok sinirliyim	-1	-2	-3	-4
14	Sinirlerimin çok gergin olduğunu hissediyorum	-1	-2	-3	-4
15	Kendimi rahatlamış hissediyorum	-1	-2	-3	-4
16	Şu anda halimden memnunum	-1	-2	-3	-4
17	Şu anda endişeliyim	-1	-2	-3	-4
18	Heyecandan kendimi şaşkına dönmüş hissediyorum	-1	-2	-3	-4
19	Şu anda sevinçliyim	-1	-2	-3	-4
20	Şu anda keyfim yerinde.	-1	-2	-3	-4

APPENDIX-2: STAI Form Y-2

YÖNERGE:Aşağıda kişilerin kendilerine ait duygularını anlatmada kullandıkları bir takım ifadeler verilmiştir. Her ifadeyi okuyun, sonra da o anda nasıl hissettiğinizi ifadelerin sağ tarafındaki parantezlerden uygun olanını işaretlemek suretiyle belirtin. Doğru ya da yanlış cevap yoktur. Herhangi bir ifadenin üzerinde fazla zaman sarf etmeksizin **anında** nasıl hissettiğinizi gösteren cevabı işaretleyin.

		HIÇ	BİRAZ	ÇOK	TAMAMIYLA
1	Genellikle keyfim yerindedir	-1	-2	-3	-4
2	Genellikle çabuk yorulurum	-1	-2	-3	-4
3	Genellikle kolay ağlarım	-1	-2	-3	-4
4	Başkaları kadar mutlu olmak isterim	-1	-2	-3	-4
5	Çabuk karar veremediğim için fırsatları kaçıtırırım	-1	-2	-3	-4
6	Kendimi dinlenmiş hissediyorum	-1	-2	-3	-4
7	Genellikle sakin, kendine hakim ve soğukkanlıyım	-1	-2	-3	-4
8	Güçlüklerin yenemeyeceğim kadar biriktiğini hissedirim	-1	-2	-3	-4
9	Önemsiz şeyler hakkında endişelenirim	-1	-2	-3	-4
10	Genellikle mutluyum	-1	-2	-3	-4
11	Her şeyi ciddiye alır ve endişelenirim	-1	-2	-3	-4
12	Genellikle kendime güvenim yoktur	-1	-2	-3	-4
13	Genellikle kendimi emniyette hissedirim	-1	-2	-3	-4
14	Sıkıntılı ve güç durumlarla karşılaşmaktan kaçınırım	-1	-2	-3	-4
15	Genellikle kendimi hüzünlü hissedirim	-1	-2	-3	-4
16	Genellikle hayatımdan memnunum	-1	-2	-3	-4
17	Olur olmaz düşünceler beni rahatsız eder	-1	-2	-3	-4
18	Hayal kırıklıklarımı öylesine ciddiye alırım ki hiç unutamam	-1	-2	-3	-4
19	Aklı başında ve kararlı bir insanım	-1	-2	-3	-4
20	Son zamanlarda kafama takılan konular beni tedirgin ediyor	-1	-2	-3	-4

APPENDIX-3: Criteria Survey

ARAŞTIRMA: OYUNLAŞTIRILMIŞ VE GELENEKSEL DEĞERLENDİRME TESTİNİ SUNAN FİRMALARIN ÖĞRENCİLERDE YARATTIĞI İZLENİM

Adınız Soyadınız:	Yaşınız:	Cinsiyetiniz:
Sınıfınız:	Bölümünüz:	

Amaç: İşe alımda kullanılan bir değerlendirme aracında hangi kriterlerin daha önemli olduğunu ölçmektir.

Aşağıdaki seçenekler arasında işaretleme yaparken lütfen verilen örneği dikkate alın.

Örnek: İşe alım sürecinde kullanılan değerlendirme testlerinin kısa sürmesi mi yoksa anlaşılır olması mı daha önemli? Cevabım kısa sürmesi. (o halde “kısa sürmesi” seçeneğine yakın olan 9,7,5 ve 3 sayılarını dikkate alacağım). Peki “kısa sürmesi” kriteri ne kadar önemli? (9,7,5 ve 3 sayılarından birini seçmeliyim). Eğer kısa sürmesi ve anlaşılır olması kriterlerinin aynı derecede önemli olduğunu düşünüyorsam 1’i işaretlemeliyim.

	Ana Kriter	Alt Kriterler	Tamamen Etkili	Çok Daha Etkili	Biraz Daha Etkili	Eşite Yakın Etkili	Eşit	Eşite Yakın Etkili	Biraz Daha Etkili	Çok Daha Etkili	Tamamen Etkili	Alt Kriterler	
			9	7	5	3	1	3	5	7	9		
Kriterler	Teknik Faktörler	Teknolojik olunması										İnovatiflik	
		Teknolojik olunması										İlgi çekicilik	
		Teknolojik olunması										Eğlence	
		Teknolojik olunması										Doğru Değerlendirilmek	
		İnovatiflik										İlgi çekicilik	
		İnovatiflik										Eğlence	
		İnovatiflik										Doğru Değerlendirilmek	
		İlgi çekicilik										Eğlence	
		İlgi çekicilik										Doğru Değerlendirilmek	
		Eğlence										Doğru Değerlendirilmek	
	Duygusal Faktörler	Rahat hissetme											Samimiyet
		Rahat hissetme											Yakınlık hissi
		Rahat hissetme											Çalışma isteği
		Rahat hissetme											Önem verilmesi
		Samimiyet											Yakınlık hissi
		Samimiyet											Çalışma isteği
		Samimiyet											Önem verilmesi
		Yakınlık hissi											Çalışma isteği
		Yakınlık hissi											Önem verilmesi
		Çalışma isteği											Önem verilmesi

APPENDIX-4: Alternatives Survey

ARAŞTIRMA: OYUNLAŞTIRILMIŞ VE GELENEKSEL DEĞERLENDİRME TESTİNİ SUNAN FİRMALARIN ÖĞRENCİLERDE YARATTIĞI İZLENİM

Adınız Soyadınız:	Yaşınız:	Cinsiyetiniz:
Sınıfınız:	Bölümünüz:	

Amaç: İşe alımda kullanılan bir değerlendirme aracında hangi kriterlerin daha önemli olduğunu ölçmektir.

Aşağıdaki seçenekler arasından işaretleme yaparken lütfen verilen örneği dikkate alın.

Örnek: İşe alım sürecinde kullanılan değerlendirme testlerinin kısa sürmesi mi yoksa anlaşılır olması mı daha önemli? Cevabım kısa sürmesi. (o halde “kısa sürmesi” seçeneğine yakın olan 9,7,5 ve 3 sayılarını dikkate alacağım). Peki “kısa sürmesi” kriteri ne kadar önemli? (9,7,5 ve 3 sayılarından birini seçmeliyim). Eğer kısa sürmesi ve anlaşılır olması kriterlerinin aynı derecede önemli olduğunu düşünüyorsam 1’i işaretlemeliyim.

	ALT KRİTER	Tamamen Etkili	Çok Daha Etkili	Biraz Daha Etkili	Eşite Yakın Etkili	Eşit	Eşite Yakın Etkili	Biraz Daha Etkili	Çok Daha Etkili	Tamamen Etkili	ALT KRİTER
		9	7	5	3	1	3	5	7	9	
Alternatifler	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmanın eğlenceli bir çalışma ortamına sahip olduğunu düşünüyorum.										Geleneksel Değerlendirme Testi’ni sunan firmanın eğlenceli bir çalışma ortamına sahip olduğunu düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmanın beni doğru değerlendireceğini düşünüyorum.										Geleneksel Değerlendirme Testi’ni sunan firmanın beni doğru değerlendireceğini düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmanın inovatif olduğunu düşünüyorum.										Geleneksel Değerlendirme Testi’ni sunan firmanın inovatif olduğunu düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi kullanan firmaların ilgili çekici olduğunu düşünüyorum.										Geleneksel Değerlendirme Testi kullanan firmaların ilgili çekici olduğunu düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmanın rahat bir çalışma ortamına sahip olduğunu düşünüyorum.										Geleneksel Değerlendirme Testi’ni sunan firmanın rahat bir çalışma ortamına sahip olduğunu düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmanın teknolojik olduğunu düşünüyorum.										Geleneksel Değerlendirme Testi’ni sunan firmanın teknolojik olduğunu düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmanın çalışanlarına önem verdiğini düşünüyorum.										Geleneksel Değerlendirme Testi’ni sunan firmanın çalışanlarına önem verdiğini düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmanın samimi bir çalışma ortamına sahip olduğunu düşünüyorum.										Geleneksel Değerlendirme Testi’ni sunan firmanın samimi bir çalışma ortamına sahip olduğunu düşünüyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmayı kendime yakın hissediyorum.										Geleneksel Değerlendirme Testi’ni sunan firmayı kendime yakın hissediyorum.
	Oyunlaştırılmış Değerlendirme Testi’ni sunan firmada çalışmak isterim.										Geleneksel Değerlendirme Testi’ni sunan firmada çalışmak isterim.

APPENDIX-5: Traditional Assesment Test

Yetkinlik Değerlendirme Testi	
Adınız: Soyadınız:	
Durum	Sizin Yaklaşımınız
1. 4 kişilik bir ekiple bir antik bir kulenin dış duvarına tırmanıyorsunuz. Üzerinizde size halatla bağlı 2 kişi, altınızda ise 1 kişi vardır. Grubunuzla yolu yarılamak üzereyken altınızdaki arkadaşınızın kafasına bir taş düşer ve bayılır. Altınızdaki arkadaşınızın bedeninin ağırlığı hepinizi aşağıya sürüklemektedir. Yukarınızdaki arkadaşlarınız sıkı sıkı tutunurken siz ne yapılması gerektiğini düşünürsünüz?	A. Zeminde bir kum tepesi vardır ve altınızdaki arkadaşınızın yumuşak kuma düşmesi için halatını kesersiniz. B. Üstünüzdeki arkadaşlarınızdan birisi iyi bir tırmanıcı olduğu için grubun ne yapması gerektiğini ona sorarsınız. C. Sıkıca tutunurken altınızdaki arkadaşınızı uyandırma hevesiyle ona seslenirsiniz. D. Altınızdaki arkadaşınızı kuma bırakma planınızı, iyi bir tırmanıcı olan arkadaşınıza danışsınız.
2. Tırmandığınız kulenin tepesinde bir ayna bulursunuz. Aynaya yaklaştığınız zaman görünmez bir güç sizi geriye doğru itmektedir ve bu gücün ne kadar tehlikeli olabileceğini bilmiyorsunuzdur. Ne yaparsınız?	A. Kuleye tırmanan hiç kimse bu antik güç konusunda uzman değildir. Dolayısıyla, iyi bir tırmanıcı olan arkadaşınızı, arkeolojiden anlayan arkadaşınızı getirmesi için kuleden aşağıya gönderirsiniz. B. Yılların getirdiği macera deneyimi hiçbir şeyin görüldüğü gibi olmadığını öğretti. Aynayı dikkatlice inceleyip sırrını keşfetmeye çalışsınız. C. Aynayı uzaktan inceleyip detaylı notlar alırsınız ve iyi bir tırmanıcı olan arkadaşınızı notlarla birlikte aşağıya gönderip arkeoloji uzmanı olan arkadaşınızdan tavsiye istersiniz. D. Ayna, hepiniz için tehlikeli olabileceğinden herkesin aşağıya inmelerini ve arkeoloji uzmanı arkadaşınıza danışmalarını söylersiniz.
3. Kuleden çıkan 5 büyük akrep, dışarda bekleyen arkeoloji uzmanı arkadaşınıza doğru ilerliyor ve arkadaşınız yaktığı ateş ile akrepleri korkutmaya çalışıyor. Siz ise kuleden bakıp akreplerin aslında güneş ışığından kaçtığını görüyorsunuz. Ne yaparsınız?	A. Ateşle akrepleri korkutmaya çalışan arkadaşınıza, akreplerin güneş ışığından korktuğu fikrini anlattıktan sonra yanınızdaki sihirli ayna aracılığıyla güneş ışığını akreplere tutarsınız. B. Kuledeki arkadaşınızla aynayı akreplere karşı tutarsınız. C. Doğrudan aynayı akreplere karşı kullanırsınız.

	D. Ateşle akrepleri korkutmaya çalışan arkadaşınıza yardım etmek için kuleden inersiniz ve siz de akrepleri ateşle korkutmaya çalışırsınız.
4. Sihirli aynayı kuleden çıkardıktan sonra etrafında yer alan elmasların bazılarının eksik olduğunu fark edersiniz. Ayna üzerindeki çizikler bu taşların bir hırsı tarafından çalındığını işaret etmektedir. Kimlerin aynaya erişebildiğini öğrenip ortaya iki tane şüpheli çıkarırsınız. Bu iki şüphelinin gün içerisinde aynayı incelemekte ısrar etmişlerdir. Ne yaparsınız?	A. Şüphelilerden birine yaklaşip onu hırsızlıkla suçlarsınız. B. Herkesi sorgulayıp taşlar için kapsamlı bir arama başlatırsınız. C. Diğer arkadaşlarınızın şüpheli arkadaşlar hakkındaki fikirlerini öğrenirsiniz.
5. Ekibinizle birlikte büyük bir hazineye ulaşmak için zorlu bir yolculuk yaparsınız ve sonunda oraya ulaştığınızda alacakaranlıktır. Gece hızla yaklaşırken kamp yapmaya karar verirsiniz. Yorgun olmanıza rağmen herkesin çadır kurma ve yemek yapmaya yardımını gerekmektedir. Ama tek yapmak istediğiniz şey yatıp uyumaktır. Bu durumla nasıl başa çıkarsınız?	A. Çalışırken diğerleriyle şakalaşarak uyanık kalmaya çalışırsınız. B. Arkadaşlarınızdan biri çalışırken günün ne kadar zor geçtiğinden yakınınca siz de ona katılırsınız. C. Sorumluluklarınızı sabırlı bir şekilde yerine getirerek diğerlerine örnek olursunuz. D. Yorgun bir arkadaşınız kavga başlatır ve siz de ona karşılık verirsiniz.
6. Hazinenin bulunduğu tapınağa girdiğinizde altınızdaki zemin sallanmaya başlar. Arkadaşlarınızdan biri bağıarak deprem olduğunu ve tüm binanın üzerinize çökeceğini söyler. Bir diğer arkadaşınız ise binanın biraz daha dayanabileceğini ve tüm hazinenin gömülüp gitmesine izin vermeyeceğini söyler. Ne yaparsınız?	A. Bir gözünüzle parçalanan binayı kontrol ederken bir yandan da hazineyi toplamaya devam edersiniz. B. Hazineyi toplamaya odaklanırken tahliye için haber verme işini arkadaşlarınızdan birine bırakırsınız. C. Yalnızca en yakınınızdaki hazineleri alıp, harabenin iç kısmındaki daha değerli eşyaları bırakırsınız. D. Arkeolojiden anlayan arkadaşınıza seslenerek herkesin ilk önce alması gereken parçaları belirlemek için değerli eşyaları tespit etmesini söylersiniz.
7. Hazineleri aldıktan sonra tapınaktan uzaklaşırken bir arkadaşınızın kaybolduğunu farkedersiniz. Kaybolduğunun tek göstergesi bir hışırtı ve hafif bir rüzgardır. Alarm durumuna geçip durmaya karar verirken ikinci bir kurban da yakalanır. Bu sefer saldırganı görürsünüz. Dev bir martı, perdeli pençeleriyle çırpınan arkadaşınızı kapmış götürmektedir. Hemen yanınızda sadece sizin sığılabileceğiniz ve içinde eğilip silahlarınızı çıkarabileceğiniz bir	A. Koşarak arkadaşlarınızı biraraya toplarsınız. Belki birlikte bu kuşların üstesinden gelebilirsiniz. B. Martılardan kurtulana kadar bir sığınaktan diğerine koşarsınız. C. Açık alana doğru koşarken uçan martılardan vurabildiğiniz kadar vurursunuz. D. Kendi pozisyonunuzu korursunuz, diğerleri sığınacak bir yer bulana kadar onları koruyacak şekilde koruma ateşi açarsınız.

<p>girinti vardır. Maalesef arkadaşlarınız bu kadar şanslı değildir. Ne yaparsınız?</p>	
<p>8. Grup lideriniz hastalanır ve grubun en tecrübelisi liderliği üstlenerek liderinizin yaptığı birçok görevi size verir. Kendi işiniz, liderinizin işleri ve ekip arkadaşlarınızdan gelen sorular arasında kalınca birden fazla parçaya bölünmüş gibi hissedersiniz. Ne yaparsınız?</p>	<p>A. Herkesi dinlemeye çalışmakla birlikte kendi problemleriyle başa çıkmaları için kendi hallerine bırakırsınız. B. Grubun en tecrübelisi liderliği üstlendiği için liderinizin tüm görevlerini ona geri devredersiniz. C. Herkese, size danışmak yerine birbirinin uzmanlık alanlarından yararlanmaları gerektiğini söylersiniz. D. İşleri durdurup tüm sorunları bir defada çözmeye çalışırsınız.</p>
<p>9. İssiz bir adada kamp yapmaktasınız. Gece nöbet tutan arkadaşlarınız, bağıışlarla ve silah sesleriyle kamptakileri uyandırır. Siz ve maceracı arkadaşlarınız yardıma koşarsınız. Korkmuş nöbetçiler, maskeli ve parlak kılıçlı insan suretleri gördüklerini anlatır. Bölgeyi ararsınız fakat hiçbir şey bulamazsınız. Nöbetçiler bir çeşit hayaletle karşılaşmış olabileceğinden bu hayaletleri kovma töreni yapmayı deneyebileceğinizi düşünürsünüz. Ekibin çoğu bu fikri destekler fakat arkadaşlarınızdan biri bu tür şeylerin “bilimsellikten uzak” batıl inançlardan ibaret olduğunu söyler. Bu durumda bir şeyler yapılması gerekiyordur ama ne?</p>	<p>A. Töreni batıl inanç olarak gören arkadaşınız karışmasın diye bu töreni gizlice yaparsınız. B. Aranızda pek de “bilimsel olmayan” kişilerin hatırına bu törene izin vermesi için arkadaşınızı tatlı dille ikna edersiniz. C. Töreni batıl inanç olarak gören arkadaşınız ile uzlaşmaya varmak için yapılabilecek başka bilimsel yöntemler olup olmadığını sorarsınız. D. Çoğunluğun ne düşündüğünü öğrenmek için bir oylama yaparsınız.</p>
<p>10. Ekibinizle birlikte ıssız bir adada yürürken diz boyunda sis ile karşılaşsınız. Arkadaşlarınızdan biri sisin içine girer girmez ellerini gözlerine vurmaya başlar ve bağırma başlıyıp sahneden yuvarlanarak kaçır. Hemen yanına koşarsınız fakat hiçbir yara izi bulamazsınız. Arkadaşınız kendine geldiğinde ne olduğunu sorarsınız. Tek yaptığı şey bağırarak bulunduğunuz ortamın lanetli olduğunu söyler. Bir arkadaşınız bunun mantıklı bir açıklaması olduğundan emindir ancak diğer arkadaşlarınız korkup sahneye çıkmayı reddeder. Ne yaparsınız?</p>	<p>A. Onları korkuları yerine hazineden elde edecekleri ödüle odaklanmaları konusunda teşvik edersiniz. B. Onları sertçe talimatlarınıza uymaları konusunda uyarıp uymadıkları takdirde hazineden paylarını alamayacaklarını söylersiniz. C. Bu hazinenin kaybından kaynaklanan zararın onların payından kesileceğini sakince açıklarsınız. D. Etkileyici bir konuşma yaparak herkesi bu hazineyi elde etmek için birlikte çalışmaya ikna etmeyi denersiniz.</p>

<p>11. Sis giderek artar, sanki ıssız ada her geçen an size daha fazla engel çıkarmaya çalışmaktadır. Sislerin arasından kampınıza musallat olan karanlık ve maskeli hayaletlerle karşılaşacaksınız. Grubunuzun etrafını sarıp silahlarını çekerler fakat saldırı hamlesinde bulunmazlar. Ne yaparsınız?</p> <p>12. İssız adadan geminizle uzaklaşırken hazine içerisinde eski ama sorunsuz bir şekilde çalışan bir pusula bulursunuz. Lideriniz, yönleri daha iyi bulmak için bu eski pusulayı kullanmak ister ancak ekip arkadaşlarımızdan biri hali hazırda kullanılan pusulanın zaten sizi istediğiniz yerlere götürdüğünü dile getirir. Belki bulunan pusula kadar düzgün çalışmıyordur ama güvenilirliğini kanıtlamış durumdadır. Bu durumla nasıl başa çıkarsınız?</p>	<p>A. Bu hayaletleri dikkatle incellersiniz. Belki onlarla pazarlık etmenin bir yolunu bulabilirsiniz.</p> <p>B. Hayaletleri şaşırtarak etrafınızda oluşturdukları daireden kaçmaya çalışırsınız.</p> <p>C. Liderinize danışarak maskeli hayaletlerle nasıl başa çıkılacağını bilip bilmediğini sorarsınız.</p> <p>D. Elinizi kaldırıp hayaletleri selamlarsınız ve niyetlerini öğrenmeye çalışırsınız.</p> <p>A. Hazine içerisinde çıkan pusula, çok değerli ve iyi bir fiyata satılabileceği için hali hazırda kullanılan pusulayı kullanmayı önerirsiniz.</p> <p>B. Hazine içerisinde çıkan pusulayı kullanmayı ancak şu ana kadar kullanılmış pusulayı da doğrulama yapmak için saklamayı önerirsiniz.</p> <p>C. Hazine içerisinde bulunan pusulanın dilini bilmediğinizden hali hazırda kullanılan pusulanın daha kolay olduğunu söylersiniz.</p> <p>D. Ekip arkadaşımıza gizlice yeni bulunan pusulayı kullanıyormuş gibi yapmasını ancak rota çizerken zaten kullanılan pusulayı dikkate almasını söylersiniz.</p>
<p>13. Ekibiniz ile bir ormanın içerisinde yürüyorsunuz. Bir süre sonra bakımsız, eski ve üzüm dolu bir bağ karşınıza çıkar. Bunların büyük olasılıkla gizemli nektar olduğunu düşünürsünüz. Lideriniz, bir grup kişi yıkılmış bir villada bu gizemli içeceği içeren sağlam şişeler ararken, size ve bir ekip arkadaşınıza üzüm asmalarını toplayıp gemiye götürme görevini verir. İşinizle ilgilenirken villadan bir arkadaşınız bağırarak gelir ve diğerlerinin villanın bodrum katında zehirli yılanlar tarafından köşeye sıkıştırıldığını söyler. Ne yaparsınız?</p>	<p>A. Siz üzüm asmalarını toplama işiyle ilgilenirken yanınızdaki arkadaşınızı diğerlerine yardım etmeye gönderirsiniz.</p> <p>B. Yılanlar ateşten nefret eder. Villadan gelen arkadaşınıza diğerlerini kurtarıırken meşale kullanmasını söylersiniz.</p> <p>C. Villadan gelen arkadaşınızla birlikte boşta olan birkaç kişi gönderirsiniz. Çünkü liderinizin söylediği gibi siz ve yanınızdaki arkadaşınızın bu değerli üzüm asmaları ile ilgilenmesi gerekmektedir.</p> <p>D. Siz tehlikede olanlara yardım için koşarak giderken üzüm işlerini arkadaşınıza bırakırsınız.</p>
<p>14. Ormanda kamp kurarsınız. Bir arkadaşınız rengarenk ve lezzetli meyveler getirir fakat onları deneyecek kadar cesur olan sadece siz ikinizsinizdir. Sabahleyin uyandıığınızda herkesin bayılmış ve böcek ısırıklarıyla kaplı olduğunu görürsünüz. Siz ve meyveleri getiren arkadaşınız da</p>	<p>A. Arkadaşınız ile ormana gidip toplayabildiğiniz kadar meyve toplarsınız.</p> <p>B. Arkadaşınız meyve toplarken siz de hastaları öncelik sırasına sokarak en çok ihtiyacı olanın ilk önce tedavi edilmesini sağlarsınız.</p>

<p>ısırlmışsınız fakat yediğiniz meyve böcek zehrine karşı panzehir içeriyor olmalı ki size herhangi bir şey olmamıştır. Bayılan arkadaşlarınıza nasıl yardım edersiniz?</p>	<p>C. Siz hastalara bakarken arkadaşınıza gidip toplayabildiği kadar meyve toplamasını söylersiniz.</p> <p>D. Meyvelere güvenmeyip herkesi tıbbi malzemelerle tedavi etmeyi denersiniz.</p>
<p>15. Hazine içeren bir barınağa girmeniz gerekiyor ancak tapınak labirent tarzında. Tapınağın girişinde bir harita bulursunuz. Siz haritayı bot defterinize çizerken bir arkadaşınız haritanın etrafındaki yazıları tercüme eder. Tercüman bu haritanın, çok değerli bir hazineyi tarif ettiğini düşünür. Ekibiniz, çiziminizi takip ederek tozlu geçitlerden ve odalardan hızlıca geçer. Fakat dönüp dolaşp defalarca aynı yere geri gelirsiniz. Çizimi bir daha kontrol ettikten sonra bir yanlışlık olmadığını görürsünüz. Ne yaparsınız?</p>	<p>A. Bu labirenti çözmek için ipuçları aramak amacıyla tercümanın tapınakla ilgili kayıtlarını kontrol edersiniz.</p> <p>B. Herkese tapınağa geri girmelerini ve yolu haritaya göre tekrar kontrol etmelerini söylersiniz.</p> <p>C. Çiziminizi bir kenara bırakıp, tercümanın tecrübelerini kullanarak size rehberlik yapmasını söylersiniz.</p> <p>D. Bu tapınakta yön bulmak imkansızdır. Ekibiniz, başka yerde hazine aramalır diye düşünürsünüz.</p>
<p>16. Ormanda ilerlerken gitmek istediğiniz yolun otlarla ve ağaçlarla kaplandığını görürsünüz. Ayrıca, ekip yol üstünde dev ve zehirli kırkayakların yuvasını rahatsız ettiğinden her yer bu yaratıklarla kaplanır. Yolu sadece siz ve ekip arkadaşınız biliyordur. Lideriniz, sizden ve ekip arkadaşınızdan bu yaratıklardan kurtulmanızı ister fakat yolun izini sürme görevinizi bırakırsanız yolun izini tamamen kaybedebilirsiniz. Ne yaparsınız?</p>	<p>A. Liderinize böcekler için yardım etmeye koşmadan önce ekip arkadaşınız ile gideceğiniz yolları işaretlersiniz.</p> <p>B. Lideriniz, diğer ekip üyelerini böceklerle ilgilenmeye yönlendirirken siz ve arkadaşınız yolun izini sürmeye devam edersiniz.</p> <p>C. Yolu bilen arkadaşınızı, liderinize yardım etmeye gönderip yolun izini sürmeye tek başınıza devam edersiniz.</p> <p>D. Yolu daha sonra tekrar bulacağınızı düşünürsünüz. Hemen arkadaşınızla birlikte savaşa katılırsınız.</p>

APPENDIX-6: Screenshots of Game Based Assesment Tool (Owiwi)



CURRICULUM VITAE

Name Surname: Uğur Gürbüz

Address: Sarıyer/İstanbul

Place and Year of Birth: Gaziantep / 1992

Foreign Language: English and French

Primary Education: Ertuğrul Gazi Primary and Secondary School - 2006

Secondary Education: Aysel İbrahim Akınal High School - 2010

Bachelor's Degree: Boğaziçi University - 2015

Master's Degree: Bahçeşehir University - 2020

Institution Name: Social Science

Program Name: Master of Business Administration

Business Life: Enocta, E-learning Specialist (May 2015 – September 2017)

Turkish Economy Bank, Assistant Digital HR Manager (September 2017
– Current)

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