

Bachelor's Thesis in Informatics

Diversity, Equity & Inclusion in Game Engineering: A Practical Framework for Game Development Processes

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Diversity, Equity & Inclusion in Game Engineering: A Practical Framework for Game Development Processes

Diversity, Equity & Inclusion in Game Engineering: Ein Praktischer Rahmen für Spieleentwicklungsprozesse

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Ich versichere hiermit, dass ich diese Bachelor's Thesis selbständig verfasst und nur die angegebenen Quellen und Hilfsmittel verwendet habe.

I confirm that this bachelor's thesis is my own work and I have documented all sources and material used.

Munich, January 15, 2022

DIANA HELLMANN

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Abstract

The motivation of this work is to improve the state of diversity, equity and inclusion in the games industry. Therefore, the research focuses on a framework for the game development process and the surrounding elements to improve this current state. To answer the research questions a semi-structured as well as an integrative literature review on diversity, equity and inclusion in the context of game development was used. Based on the results, this thesis provides clear definitions of the terms diversity, equity and inclusion as a reference point for existing measures and how to include them in a practical framework. A selection of resources on this matter are discussed. The framework then offers a holistic approach, covering multiple aspects connected to game development. The research findings suggest that it is necessary to work on DEI on all levels to encourage sustainable change. This further supports the need for clear industry guidelines adapted to the special requirements of the games industry.

Keywords: DEI, diversity, equity, inclusion, games development, framework

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1 Introduction

Video games are still one of the fastest growing industries in the entertainment sector. With a worth of over 178 billion dollars in 2021 and player numbers ever increasing worldwide the games industry continuously offers a multitude of creative as well as technical jobs. [WeP22; Sch12] Accordingly, universities provide increasingly competitive courses to prepare students for the hustle and crunch culture that is the norm in the industry. [Har19] While players more and more reflect the diversity of the general population, games still often lack in this area. It is more important than ever to take a critical look at inclusion and diversity in this major industry.

The following example serves to get a better idea of the current reactive instead of proactive culture present in many games companies. The life simulation game The Sims 4 is using representation as one of their big selling points. Therefore, constantly improving on diversity, equity and inclusion is essential to keep the community happy and ensure the success of the game. The community has long been a major influence on the game's features using petitions [Vol21] or platforms like Twitter [Mal21] and The Sims Forum. The call for more diversity and inclusion ranges from disability representation [Lee21b] to including pronouns for everyone [Lee21a]. The team of The Sims 4 has already implemented features "including different things like the additional skin tones, the Asian facial features, the updated Black hairs" and continues to work on new requests [Jov21]. Their progress can be followed on platforms such as Twitch where not just adjustments on the game are discussed but they present initiatives, such as a charity called SpecialEffect who enables gamers with disabilities to play games [421]. But even with these advancements there is still plenty to do as can be seen in the mentioned requests from the community. How this continuous progress can be ensured as well as a diverse and inclusive work environment will be discussed in this thesis.

There are many other examples of companies trying to make an effort but, overall, companies often have to react to events rather than prevent them from the beginning. [Hoo21] This prevention would require active work and engagement on the companies side.

There are several publications on diversity problems in other industries and general problems in the games industry but little coverage on the intersection of diversity, equity and inclusion and the games industry. Furthermore, there is a lack of scientific research on the topic offering solutions for these problems.

Therefore, this thesis explores how game engineering can be made more ethical through diversity, equity and inclusion in various areas of the development process. As a first step, the terms diversity, equity and inclusion will be defined. Second, I will provide an overview of different approaches to diversity from various authors as well as legal settings and voices from the community. Following this, we break down the game development process to understand the various aspects surrounding the creation of a diverse game. We will learn about the team and the impact it has through its own diversity and awareness on the topics of inclusion and diversity. Furthermore, aspects of the game itself creating inclusion and diversity will be shown. We will reflect upon the role of the

community in the development of new games and features and its potential to support but also its ability to hinder advancements regarding diversity, equity and inclusion. Finally, we are focusing on the development of a game, looking into the different stages of development and how diversity, equity and inclusion goals can be included and assured from start to finish. This work will serve as a collection of applicable knowledge on the topic. It can serve as a guide on diversity, equity and inclusion for aspiring as well as experienced industry professionals.

2 Methodology

Motivated by the current state of diversity, equity and inclusion in the games industry, this thesis will try answer the question of what sho a framework for the game development process and the surrounding elements look like to improve this current state? Ideally, the whole games engineering process (team, game and community) would reflect our diverse society and be a safe and welcoming space for everyone. While many companies started initiatives in the last years to increase diversity, equity & inclusion, the reality is still far from the ideal situation. Currently, games are still portraying racist or sexist clichés and companies have to face lawsuits due to discrimination or sexual harassment in the workplace. Therefore, this thesis will provide an overview of existing possibilities to make the game development process, with all its involved parties, more diverse, equitable and inclusive. Following these approaches, we will investigate ways they can be applied in this particular field.

Research questions:

- RQ1: How does the scientific community define Diversity, Equity & Inclusion today?
- RQ2: Where in the game development process can/should DEI elements be included?
- RQ3: What kind of DEI resources and measures have been suggested over the last few years by government authorities, companies and the gaming community?
- RQ4: How can existing DEI measures be adapted into the game development process?

To find related work and answer these questions I used a literature review following the guidelines from Snyder's work on literature reviews. I utilised a semi-systematic approach for RQ1 and an integrative approach for RQ2, RQ3 and RQ4 to include the most suitable sources on the respective topics. [Sny19]

To find academic and scientific research I used the databases Google Scholar, TUM OPAC, Connected Papers, ACM Digital Libraries, SAGE journals and IEEE Xplore. The initial keyword search included the terms (Video) Games, Development, Engineering, Design, Diversity, Equity, Inclusion and DEI. The terms were searched for in different combinations to find all relevant publications. While most of the referenced information in this thesis originates from scientific papers, content from other sources, including but not limited to conference talks, government websites and articles, was necessary to get a better understanding of current events and developments.

While interviews with individuals can offer deeper insights into the problems and solutions on this topic, they only reflect one person's opinion. To get a cross-section of the industry best practices on DEI, the number of interviews needed, would go beyond the scope of this thesis.

Related work will be discussed in chapter 4, especially in subsection 4.4.1 and section 4.5.

The terms game design and game development are used interchangeably. The term game refers to video games in this work.

3 Diversity, Equity & Inclusion

Before looking at any other topics, it is essential to know what exactly we mean by diversity, equity & inclusion. Following RQ1 we will explore how these concepts are defined individually and how they are used in combination, often used with its abbreviation DEI. To stay within the scope of this thesis, the focus will be on diversity, equity & inclusion in the workplace as well as in game design.

3.1 Diversity

The discourse about diversity has been going on for decades [ON14] and while there is an abundance of literature, there is also an abundance of differing definitions and areas these definitions focus on.

Looking at the subject we can see a shift from traditional diversity to modern diversity in the last 30 years. The traditional definition of diversity used in the 1990s only considered factors like race and gender to be relevant. Modern diversity first expanded its definition to include factors such as disability, sexual orientation and religion. Nowadays it includes variations in communication styles, economic status and individual competencies and skills gained through lived experiences. [Kap11]

To get a better understanding of all the aspects that make up diversity and consequently can be considered by game designers, all the factors can be divided into primary and secondary dimensions. Primary dimension factors are things every human is born with or cannot influence, such as gender identity, ethnicity, race, age, mental and physical ability and sexual orientation. In opposition, the secondary dimension covers all the characteristics that are acquired and can change over time, including but not limited to education, religious beliefs, income, parental or marital status, geographic location or work style. [Kap11] While the secondary dimensions are often less observable and therefore have less impact on daily interactions, they are equally important in the context of self-definition. Other research differentiates between demographic diversity and diversity of thought [NV15] or visible and invisible diversity. [SCS18; Har12] While using different terms, both papers refer to the same split of the visible characteristics age, race, gender identity and ethnicity on one side and all other characteristics, including disabilities and sexual orientation, on the other side. While the former are always present, the latter can be hidden, for example to assimilate to a group one aims to belong to. In section 3.3 the relevance of this in the context of inclusion will become clear.

One thing all the authors have in common is their acknowledgement of the existence and relevance of all the mentioned factors. Furthermore, there is a consensus on the meaning of diversity and how it changed. Following the traditional approach, diversity used to be about the composition of groups with a focus on visible demographic differences, mainly race and gender. [ON14; Rob04] This view led to attempts at equal employment opportunities and affirmative action (e.g., quota systems or preference for underrepresented minorities in hiring processes; sometimes referred to as positive discrimination). [Kap11]

Today, diversity stands for a multitude of backgrounds and beliefs of all the individuals that make up a group. [Rob04; Kap11; GMB18] To create a truly diverse environment more than hiring diverse individuals is needed.

In the context of design Gomez et al. state "diversity-in-use . . . is a measure of the amount of variation that a design can accommodate and who can and can't use the designed tool for a desired outcome". [GGW21] This statement is referring to tools for CSCL (Computer-Supported Collaborative Learning) but is equally true for the context of game design. Together with the knowledge about all possible kinds of diversity, this approach can be used to produce diverse games as well as establish a diverse climate at work and in the community.

In 2011 Shore et al. stated a lot of research had focused on single categories of diversity (age, race, sex) while the effects of intersectionality (e.g., Black women) had only begun to be researched. An example of how intersectionality can be used to increase DEI in games development can be found in subsection 4.4.1 on Black Female Thought.

3.2 Equity

Building on the idea of diversity and individual differences, equity is essential. For the longest time equality was considered the answer to all questions. But considering the historical disadvantages women, people of colour (POC) and people with disabilities faced, it is important to provide everyone with the support they need to succeed. Not a one-size-fits-all solution - as suggested by the definition of equal treatment - that neglects individual requirements.

In the past the promise of equity was often only answered with equal opportunities, such as general access and resources. [Gro99] This disregards the lived experiences and additional obstacles many minorities have to face. Drawing a clear line between the terms equality and equity is necessary to efficiently act on it. An example: Equality means to give everyone the same bicycle. Equity proposes to give everyone a bike that fits their needs in size, accessibility (handcycle) and additional support (support wheels or e-bike). Treating people equitable looks like equal treatment in some and like unequal treatment in other situations. A 2017 study showed that people value fairness - and therefore equity - over equivalence. [GGW21]

Equity further means to question current practices "to discover who they benefit and who they limit". [Gro99] Moving away from the general meaning of equity and towards how it can be viewed in the context of design, Gomez et al. summarize equity as "the extent to which a design can accomplish uniformly successful outcomes for its users and avoids successful outcomes being coupled to ascriptive or attributed variation like skin color, gender, ability, and location." [GGW21]

To sum it up: "If equality is the end goal, equity is the means to get there." [19]

3.3 Inclusion

As the last of the three terms, we will be looking at inclusion. Shore et al. analysed multiple definitions by other authors and found two main themes: Belongingness and uniqueness. Both are necessary for an individual to feel as a valued member of a group

and therefore included.

Belongingness addresses the need to be part of a group while being respected by and connected to other members. It is also an important part of the integration-and-learning perspective, companies often refer to in the context of inclusion, which values the diversity in a group as a resource for personal and organizational growth. This appreciation of the individual leads to the feeling of belonging to the group.

Uniqueness means being in some way different from others in the group while being one's authentic self as well as being appreciated by the group for these unique characteristics. At the workplace this includes new problem-solving approaches, cultural insights or knowledge based on previous experiences. [Sho+11]

Figure 3.1 visualizes the need for both factors. If one theme is missing the individual in question will either face "Assimilation" (high belongingness - low value in uniqueness) or "Differentiation" (low belongingness - high value in uniqueness). If both themes are missing the individual is excluded from the group, neither being an insider to the group nor being valued for their unique perspective.

To assimilate to a group an individual must hide parts of their identity. While visible diversity cannot be hidden, information about invisible differences like religion or sexual orientation can be withheld from the group in order to be seen as part of the mainstream culture in this aspect. The reasons to either assimilate to or differentiate oneself from the group connect to a lack of belonging or uniqueness that the individual is trying to counteract.

The positive outcomes of perceived work group inclusion are pictured in Figure 3.2. They include better team relations, employee retention, increased well-being and creativity. To reach these positive outcomes Shore et al. lists three aspects of inclusion as necessary: Inclusive Climate, Inclusive Leadership and Inclusive Practices. [Sho+11] This illustrates the need for inclusivity at all levels.

Again, coming back to the context of design, "inclusion is a perspectival outcome measure". [GGW21] Inclusive design signals more users that they are part of the target group (belongingness) and minimizes users encountering barriers caused by unique characteristics (uniqueness). Inclusion goes further than just thinking about the potential diversity in users but values the unique perspectives they add to a game.

3.4 Combining Diversity, Equity & Inclusion

"It's about realizing that diversity efforts, without equitable practices and intentional inclusion, will always fall short." [GGW21]

Before the term DEI and the connected ideas gained traction the focus was solely on diversity. This was problematic because companies only looked at diversity from a plain numbers point of view. Instead of seeing diversity as a valuable resource that increases innovation and creativity [Fer17] they often only saw the need to meet legal specifications. This started to change especially in recent years when the importance and awareness of the topics equity and inclusion started to increase.

Nowadays diversity has turned into a non-negotiable for many businesses. This is reflected in internal diversity programs, such as education and trainings, career development or mentoring programs, adapted hiring practices or the requirements for supplying

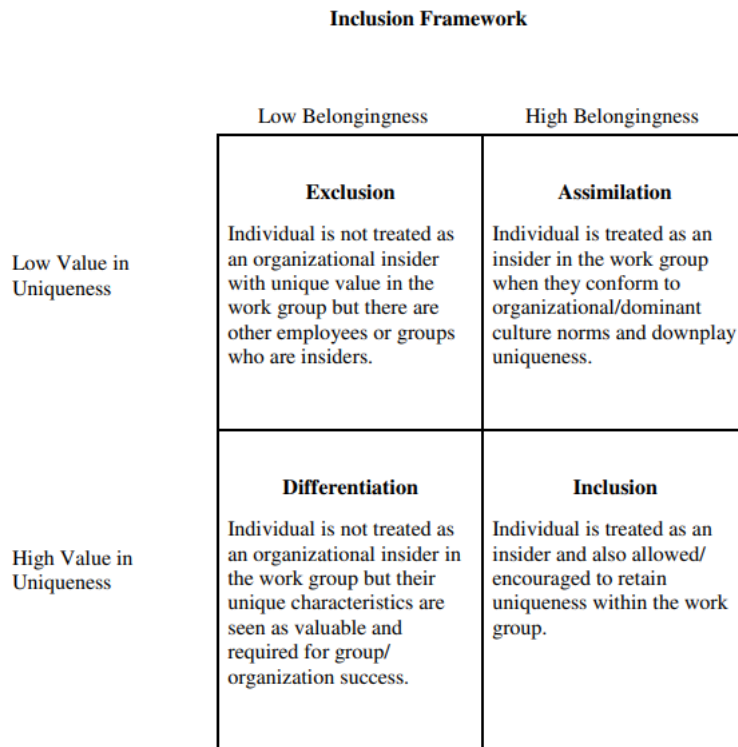


Figure 3.1: Inclusion Framework [Sho+11].

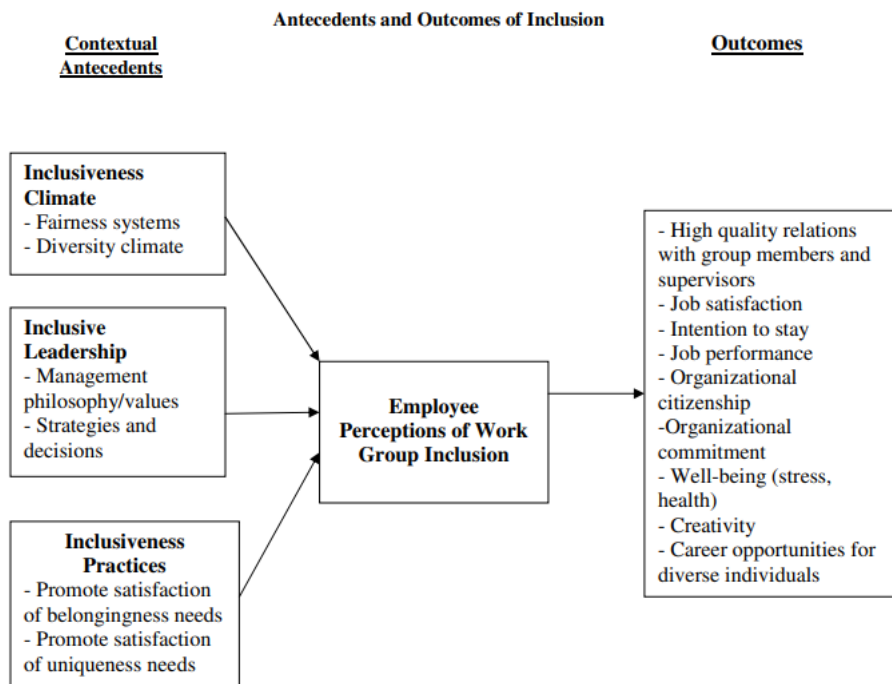


Figure 3.2: Antecedents and Outcomes of Inclusion [Sho+11].

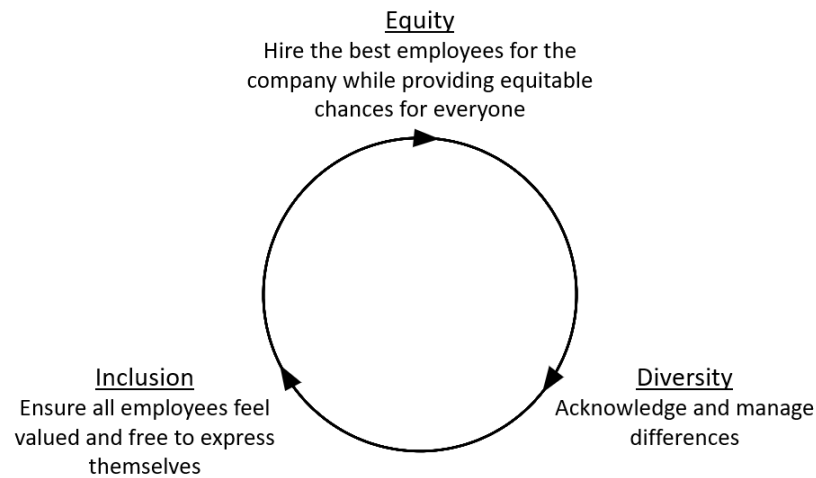


Figure 3.3: Interaction of diversity, equity and inclusion in hiring practices.

companies. All these steps help to increase and retain workforce heterogeneity in the organization. [Rob04]

When the idea of inclusion arose and employers recognized its relevance to retain good employees, the discourse shifted towards Diversity & Inclusion. Adding the concept of equity closes the circle of creating, managing and maintaining a diverse workforce, as visualized in Figure 3.3, that will in return boost a company's success through their unique insights and ideas.

Many companies have started to establish DEI initiatives over the last years or got external support on the matter but there is still plenty to do; one example for that can be found in section 4.2 which explains the recent events and accusations against the games company Activision Blizzard.

4 Existing Frameworks, Concepts and Tests

A multitude of ideas exist on how to best implement DEI in the workplace as well as in the gaming community and games themselves. These ideas can be found in various forms and by different authors. The forms include laws, frameworks, concepts and tests. Authors can range from government authorities over scientists to members of the workforce or community. The following overview takes those different existing ideas and puts them in context of game design, the games industry and the communities surrounding these.

4.1 Government Resources and Legal Setting

Besides adhering to DEI rules and guidelines as the right thing to do as a company or individual, there also exists a legal basis in many countries to further the advancements on DEI.

4.1.1 Laws and Government Funded Resources in Germany and the EU

General Equal Treatment Act (Allgemeines Gleichbehandlungsgesetz)

The General Equal Treatment Act (Allgemeines Gleichbehandlungsgesetz - AGG) is a German law prohibiting discrimination to ensure equal treatment in various areas of daily life from hiring practices to apartment rental. The first version came into effect in 2006. [Ant21]

EU Directives and Actions

The AGG is based on four EU Directives established between 2000 and 2004; these include the Racial Equality Directive, the Employment Equality Directive and the Gender Equality Directives. [Cou00a; Cou00b; Cou02; Cou04; Cou06] While none of the directives use the term equity itself, they all mention Positive Action. Positive Actions are additional measures necessary to ensure equitable treatment. In 2019 the EU established an internal Task Force on Equality which supports multiple strategies and action plans in the current legislative period 2020-2025 on gender equality, anti-racism, the inclusion of Roma and persons with disabilities. [Eur21]

Federal Anti-Discrimination Agency (Antidiskriminierungsstelle des Bundes)

The Federal Anti-Discrimination Agency (Antidiskriminierungsstelle des Bundes) is part of the realisation of the AGG. It offers advice for victims of discrimination, insights into their research on the topic as well as practical ideas to improve on anti-discrimination in

the workplace.

Their online presence is also available in easy language and offers topic videos in German sign language, following their own suggestions for inclusion. The Agency's work covers general information on existing laws and terminology, initiatives and ready-to-use material for employers; all of which are aimed at normalising diversity and creating an equitable and inclusive workplace.

Under the name #betriebsklimaschutz, which translates to corporate climate protection, they curated a collection of best practices against sexual harassment in the workplace with examples of how these are implemented. The collection includes general guidelines and codes of conduct, information on how to offer advice and support for those affected, ready-to-use material, such as employee surveys and risk assessments, and guides for awareness-raising activities. They also mention the need to come up with suitable concepts for small businesses and the potential of cross-company approaches.

Two other resources, the eg-check and the gb-check, are aimed at the equal treatment of genders in their working lives. The eg-check focuses on equal payment, the gb-check on gender equitable treatment. Both checks consist of a set of analysis tools and were developed by the agency together with scientists to help employers review their current equality standards. On the basis of the results, they also recommend measures to further improve the company standards. [Ant17a]

To support another aspect of diversity - religious diversity - the agency recommends multiple steps to ensure equitable treatment. Those include but are not limited to anonymised hiring processes, access to further education and training for all, transparent complaint management, using an intercultural calendar that includes various religious holidays and adapting the canteen menu to the different needs. These measures encourage judgement free conversations and show everyone that their beliefs are welcome. [Ant17b] To welcome other aspects of diversity companies can take similar action ensuring a diverse, equitable and inclusive company culture.

Charta of Diversity (Charta der Vielfalt)

The Charta of Diversity (Charta der Vielfalt) is a government sponsored initiative to encourage German companies to embrace diversity in their workforce. It was established in 2006 and is a registered charity since 2010. It is mainly aimed at employers and offers a knowledge base about diversity and how it can improve overall company culture as well as solve problems of over-aging, shortage of skilled workers and more. [Cha22b]

They offer advice and resources on several topics, such as Diversity Management or Global Diversity & Inclusion Benchmarks. The latter is a free tool to measure the state of DEI in the company. It works for companies of all sizes and industries. The tool focuses on internal and external actions, the company foundation and how the previous three points are bridged. [Cha22a]

Another measure recommended by the Charta are Employee Resource Groups (ERGs). They are voluntary groups formed by and for employees with similar backgrounds or experiences to come together and voice their opinions and ideas together. They create a safe space to discuss problems and present them to higher-level management as a united front.

Since 2010 the European Commission organizes the EU Platform of Diversity Charters. Currently, almost all members of the EU take part and have their own national diversity

charters. In May 2021 the first European Diversity Month took place. [Cha22b]

4.1.2 Laws and Government Funded Resources in the US

While the style of government in the EU has kept its policies and laws on DEI stable over the last decades, therefore, providing a clear message of continuous improvement on the subject, the US' two-party system had a substantial influence on the progress on DEI in the country. While presidents on both sides - Democrats and Republicans - have had very different political strategies and focus areas, they all pushed DEI in some ways. Democratic presidents' orders often had a more direct influence, such as Biden's "Executive Order on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce" [Bid21]. In comparison the Republican party only indirectly effected change. Trump's policies were often either openly discriminating, such as his executive order known as the "Muslim ban" [Tru17], or generally hindering advancements on DEI [Tru20]. This on the other hand encouraged societal change and solidarity with discriminated and under-represented groups. Companies as well as individuals took a stance for improving on DEI in many areas of life. Many of Trump's discriminatory executive orders have since been revoked by the current administration under Biden.

4.1.3 Geopolitical Differences Affecting DEI

The focus of DEI in the US differs compared to the EU and Germany. This noticeable difference is mainly due to the individual historical backgrounds. The early forms of the DEI movement in the US were mainly driven by the historical oppression and discrimination of Black people over the centuries that is still visible in many areas of life, such as education and representation in leadership positions. [Cun20; Wah21] More recently the focus extended to other underrepresented groups like Native Americans and POC.

In the EU and Germany other factors influenced the diversity of the current society. In the past, around the 1950s and 1960s, there were initiatives to motivate people from countries, such as Italy and Turkey, to move to Germany as immigrant workers (Gastarbeiter). [Bun11]

One of the biggest recent shifts is due to the global migration crisis which forced many people to look for refuge in Europe. In general, the EU and the Schengen area made it uncomplicated for EU citizens to move to other member countries. This especially led to many young people leaving countries with weaker economies to find better study or work perspectives in other member countries.

Despite the differences, at this point DEI is a globally known and in many countries supported concept that has gained traction over the last years and still does. While its implementation can vary in different geographic areas, this perfectly reflects the core concept of equity in adapting to the needs of the many faces of diversity.

4.2 Voices from the Industry - The Blizzard Court Case

The following section will give an overview of the events that led to the lawsuit against the computer- and videogame company Activision Blizzard and the demands made by the court as well as employees and the gaming community. While there have been laws

protecting minority groups for decades (see section 4.1), many companies have taken little to no steps to actively increase diversity or support victims of discrimination. This example helps to understand some of the persistent problems in the gaming industry and offers ideas on how to do better in the future. [Bro21; Hoo21]

4.2.1 Overview of Events

Activision Blizzard (AB) is the publisher of widely known games such as the Call of Duty series, World of Warcraft and Overwatch. The company currently has 10,000+ global employees with their headquarters located in Santa Monica, California according to their LinkedIn profile. [Lin21]

In July 2021 the California Department of Fair Employment and Housing filed a lawsuit against the company after a two-year investigation due to complaints regarding harassment and discrimination against female employees. AB requested to put the lawsuit on hold but was turned down by the Los Angeles County Court in October 2021. A second major lawsuit followed in September 2021 by the US Equal Employment Opportunity Commission after a three-year investigation regarding workplace discrimination. The lawsuit caused AB to create an 18 million dollar fund to compensate eligible employees and commit to the following measures:

- "Upgrading policies, practices, and training to further prevent and eliminate harassment and discrimination in its workplaces, including implementing an expanded performance review system with a new equal opportunity focus;
- Providing ongoing oversight and review of the Company's training programs, investigation policies, disciplinary framework and compliance by appointing a third-party equal opportunity consultant whose findings will be regularly reported to our Board of Directors as well as the Commission." [Act21]

The list of allegations against AB is extensive, a timeline and detailed information can be found online via TechRadar. [Hoo21]

4.2.2 Outcomes

In reaction to the external as well as internal response to the lawsuit from the executive board, over 2,000 current and former employees have signed an open letter "[calling] on the executive leadership team to work with us on new and meaningful efforts that ensure employees – as well as our community – have a safe place to speak out and come forward." [Car21] Additionally, employees organized a walkout and published a statement via Polygon in support of "women, and in particular women of color and transgender women, nonbinary people, and other marginalized groups". [Car21]

The demands from the statement were as follows:

1. "An end to mandatory arbitration clauses in all employee contracts, current and future. Arbitration clauses protect abusers and limit the ability of victims to seek restitution.
2. The adoption of recruiting, interviewing, hiring, and promotion policies designed to improve representation among employees at all levels, agreed upon by employees in a company-wide Diversity, Equity & Inclusion organization. Current practices have led to women, in particular women of color and transgender women,

nonbinary people, and other marginalized groups that are vulnerable to gender discrimination not being hired fairly for new roles when compared to men.

3. Publication of data on relative compensation (including equity grants and profit sharing), promotion rates, and salary ranges for employees of all genders and ethnicities at the company. Current practices have led to aforementioned groups not being paid or promoted fairly.
4. Empower a company-wide Diversity, Equity, & Inclusion task force to hire a third party to audit ABK's [short for Activision Blizzard King] reporting structure, HR department, and executive staff. It is imperative to identify how current systems have failed to prevent employee harassment, and to propose new solutions to address these issues."

While the company's CEO apologized for the "tone deaf" reactions and hired a third party to investigate the incidents and practices, there was no confirmation the company will adhere to the demands made. The events in relation to the Blizzard Lawsuit also caused over 1.000 Ubisoft employees to sign an open letter of solidarity and in critique not just of their own company – which faced their own misconduct scandal in the previous year - but their entire industry. One paragraph reads:

"That does not mean more training sessions that go ignored by the people who need them most, and that does not mean more re-assurances and kind words. It means real, impactful action. The only way to fix something so ingrained is to remove the pillars that are complicit with it, be it by actively taking part or by supporting it."

Similar to the demands to AB, Ubisoft employees stated specific changes they want to see:

- "Stop promoting, and moving known offenders from studio to studio, team to team with no repercussions. This cycle needs to stop.
- We want a collective seat at the table, to have a meaningful say in how Ubisoft as a company moves forward from here.
- Cross-industry collaboration, to agree to a set of ground rules and processes that all studios should use to handle these offences in the future

This collaboration must heavily involve employees in non-management positions and union representatives" [Hoo21]

AB shareholder, SOC Investment Group, wrote their own list of demands: "Increase board diversity and equity by adding a woman director — preferably one with a history of advocacy for marginalized people and communities — by the end of 2021, committing to gender-balance on the board by 2025, and reserving at least one board seat for a nominee selected by current employees as their representative. Claw back bonuses from executives found to have engaged in or enabled abusive behaviour, award no bonuses for 2021, and make future bonus awards contingent on the company as a whole achieving clearly articulated and independently verified milestones for diversity and equity. Undertake a company-wide Equity Review, similar to the Racial Equity Reviews that Facebook, Air B&B, Starbucks, and BlackRock have completed or promised, but that will encompass the full range of concerns (including inequities rooted in gender, gender-identity, sexuality, and race) articulated by Mr. Kotick, Activision Blizzard employees, and customers: equity and representation issues in game design, the development process, and in user forums and similar settings." [Hoo21] More information on the Racial

Equity Review mentioned can be found in subsection 4.3.2.

A lot of promises have been made by AB as well as other companies to be better in the future, to dissect all these claims in detail would go beyond the scope of this work. A summary of the agreed upon measures can be found on the AB Website. [Act21]

4.3 Community Actions

The ever growing community is getting more and more diverse. [SD16; RI20] The community has always been a driving force for the industry. Since games are a luxury good and gamers generally do not rely on a specific game or company, their projects and ideas can help to build a more diverse space in the industry and community. Therefore, the following paragraphs present ideas and projects that come from community members.

4.3.1 Adapting and Expanding the Bechdel Test

The original Bechdel Test, also used under the names Bechdel Wallace Test or Mo movie measure, is a tool to determine the role women play in movies by three simple criteria: "(1) it has to have at least two (named) women in it, who (2) talk to each other, about (3) something besides a man." Its first version appeared in a 1985 comic by Alison Bechdel (Figure 4.1) based on ideas by her friend Liz Wallace. [Bec85; 21] The strip shows two characters from Bechdel's comic "Dykes to Watch Out For". One character states that she only watches movies that fulfil the three criteria for female representation. She adds that the last movie that did was "Alien" which came out 1979, six years prior to the comic.

While it does not determine if a movie is feminist or if the female characters play into stereotypes, it is a reliable indicator for female representation in general. This representation can be seen as a minimum requirement. The test itself cannot be considered best practice but a starting point to get conversations going and continuously improve on the lack of equal representation.

A lot of pop culture, including movies as well as games, have been made by men for men. It comes with no surprise that over 40% of the over 9000 movies listed on bechdeltest.com fail the test according to the site. This shows the huge gap in gender representation in movies that still needs to be closed in the future. With this as a background the following paragraphs are looking at ways to adapt the test to games where there is a similar lack of female representation in many cases as well as how this test can be adjusted for other underrepresented groups.

The Bechdel Test for Games

In recent years there have been several attempts at adapting the test to fit videogames. [Nix13; Fei10; Lew14] Games often have less dialogue than movies or only interactive conversations, differ in their constellation of characters depending on the way you play and have a much longer play time. Reflection on the existing key points of the test is necessary.

There are many different types of games, ranging from games without any visible (human) characters, such as single-player puzzle games, to MMORPGs with many interact-



Figure 4.1: Origin of the Bechdel Test: Comic strip "The Rule" from "Dykes to Watch Out For" [Bec85].

ing players. Since the presence of human or at least human-like characters is required for the test, we will limit the reflection to games which satisfy this requirement.

Within this category there are several approaches as in how the test can be adjusted. The first is to keep the Bechdel Test as is and focus on the overall setting. This approach is more fitted towards games with observable NPC interactions. Laura Kate Dale states "[a] scene meeting the criteria of The Bechdel Test must be an unavoidable part of the game. It is impossible to beat the game without having a scene that passes the test, regardless of any choice you make as a gamer." Therefore, skippable scenes or optional plotlines do not count to fulfil the criteria. Making it worthwhile to pay attention to underrepresented characters, such as women or POCs, is the minimum of equitable approach that is needed to work towards an equally welcoming space for all gamers. The rewards can be in the form of easter eggs or helpful in-game information.

A second approach is more player-centric and based on UX designer Elsa Bartley's statement regarding an adjusted Bechdel Test: "There must be a female character with whom you can interact, who doesn't need rescuing, and who isn't a prostitute." [Fly17] Interactions should authentically represent the style of the game: If the player talks to NPCs a lot there should be female NPCs to talk to. If the game is a shooter there should be female characters shooting each other. The second part of her statement aims at the often very stereotypical roles of women in video games; these stereotypes include the "damsel in distress" narrative and the oversexualisation of female characters. The female characters must have their own personalities and character traits that are not only based on serving the player.

The Bechdel Test and its adaptations for games do not solve the often problematic presentation of women but offer an easy to use tool for checking your game through all stages for a minimum of female representation and to evaluate a general trend throughout the past and current games landscape.

Expanding the test to other underrepresented groups

Women are not the only underrepresented and heavily stereotyped group in games. Especially POC and queer people, including those living in the intersection of those two (QPOC), are often not represented at all or only in a stereotypical and unauthentic way. [RI20; SD16]

A 2009 study analysed the 100 top-selling video games in 2005 and found an overrepresentation of white, male, adult characters. A follow-up study about the top games in the UK in 2017 showed a similar picture. A deviation from the first study was visible in the overall representation of women that increased from 13% to 22%; this increase was mainly based on an increase in secondary roles not primary roles. The overall representation of POC slightly increased to 20%. While portrayal of some groups slightly increased, such as biracial and Asian/Pacific Islanders (API), representation of Black and Hispanic characters even decreased in games age-rated Teen or Mature. [Har+20] There was no further breakdown on the male-female ratio within the percentage of represented POC or playable versus non-playable characters in this category.

This leaves us with a clear message of continued underrepresentation of POC that cannot be solved by the Bechdel Test on its own but at least can be brought to the mainstream attention as it happened before with female representation.

Following the second approach to adapting the test to video games where "[there] must

be a female character with whom you can interact, who doesn't need rescuing, and who isn't a prostitute." [Fly17], we can develop a similar test for other underrepresented groups that helps to reflect their role in a game. The test for female representation is based on major stereotypes; this can be translated to other groups by replacing the need to be rescued or the role as a prostitute with stereotypes surrounding that specific minority. For example: There must be a male black character that is neither violent nor part of a criminal organisation.

This kind of test can easily be adapted for various characters to be included in the game at the beginning of the development process. By including the team in the development of these tests, awareness of the problem is increased as well as the relevance to their game. This makes it easier at later stages to check if the game still adheres to the rules they decided on.

Using and developing these types of tests shows the wide interest from community members to see more equality in games. The simplicity and brevity of the test makes it easy to use and explain its ongoing popularity.

4.3.2 Racial Equity Tools

The website racialequitytools.org is a community-build platform designed to help individuals and groups work towards racial equity. It offers general information explaining core concepts, such as structural racism and intersectionality, as well as the history of racism. The site provides resources on multiple levels that are divided into sections: Plan, Act, Evaluate, Connect and Curricula. Within the sections guides and frameworks for different circumstances can be found. The resources are contributions of various authors, including government institutions, institutes and companies, on topics from community building over multicultural competency to leadership development. [Rac21]

While the site's focus is on racial equity many of the frameworks can also be used to work on equity for all underrepresented minorities.

4.3.3 The Pixelles Method - Amplifying Diverse Voices in the Games Industry

Pixelles is a non-profit organization based in Montreal, Canada founded by Tanya Short and Rebecca Cohen-Palacios. Their initial goal was to empower more women to develop games. At this point, many of their events are open to all members of the community. With their work they help to build a more inclusive community in the games industry.

Pixelles presented their work under the title "The Pixelles Method: How to Increase Game Dev Diversity" at the Game Developer Conference in 2014. The talk is available to watch on YouTube. [Sho14] The organization since then added new programs and now has several tracks to support everyone at their individual levels: the Game Incubator, a BIPOC Creator Program, Workshops, Mentorship Events and more.

The team of Pixelles wants to break the exclusive stereotype of only white men making and playing games through empowering women and showcasing their work. They emphasize the importance of visibility and having relatable role models in the industry. Therefore, the organization's efforts focus on both the community as well as the industry.

To make the industry more accessible as well as encourage marginalized people already working in the industry, Pixelles initialized their mentorship system. This gives both

sides - mentors and mentees - the chance to connect over common problems and individual achievements. As a part of the mentorship program, they also acknowledge the mentors and their work, arguing that even successful members of the industry suffer from imposter syndrome, a lack of confidence in their work and abilities.

Another of their main programs, the Game Incubator, started in 2013 with the first group of women being led through the development process of their own game. In the latest rendition twelve gender-marginalized people made their first game over the course of an eight-week workshop with weekly meetings and a virtual showcase in December 2021. Optional meetings with mentors and the group add to the experience. They offer networking opportunities, room for general advice and introductions to various game making tools. The workshop is free, open to interested persons of all ages, ethnicities, professions, etc., and requires no previous experience. This breaks the exclusivity of paid courses and events aimed at people with experience in game development.

Figure 4.2 and Figure 4.3 show the positive effects of these workshops within the first year after the event. Figure 4.2 shows the ripple effect of the first Game Incubator in 2013, Figure 4.3 of the second one in 2014. The inner circle (yellow/green) introduces the participants by name. The middle circle (orange/blue) lists all "Community & Professional Activities" one or more participants were involved in. Those activities include participation in Game Jams, internships, jobs and presentations given at various events. The outer circle (pink/purple) shows all "Games Made Since" and who contributed to them. The lines connect the participants to all their activities as well as the games to the events where they were developed or presented. The variety of games and events attended by almost all participants of the first two rounds of the Incubator program underline the success of this project and indicate the potential for similar projects in other locations.

The organization is supported by a number of sponsors including multiple games companies. This kind of sponsoring can be part of a companies DEI efforts; helping to diversify the next generation of games developers.

4.4 Approaches Based on Academic Research

4.4.1 Black Female Thought

In their 2020 article Rankin and Irish present "Black Feminist Thought as a Critical Framework for Inclusive Game Design". The main idea of their research was to use the intersectional experience of black women to offer new perspectives and to critically reflect the elements of a L2 (second language) learning game for Spanish. Their work was motivated by "the lack of diversity in who designs games" and "feminism in the context of gaming". For these reasons, the game in their trial was fully designed, developed and tested by a group of 20 black women who are or were all members of an all-women historically black college in the US as either students or faculty members.

"Intersectionality as a critical praxis goes beyond identity politics, criticizing and resisting the very power structures that inflict oppression on Black women and other people who live at the intersections of race, ethnicity, gender, nationality, sexuality, ableism, etc." [RI20]

Figure 4.4 shows an overview of the steps taken in developing the game with the inter-

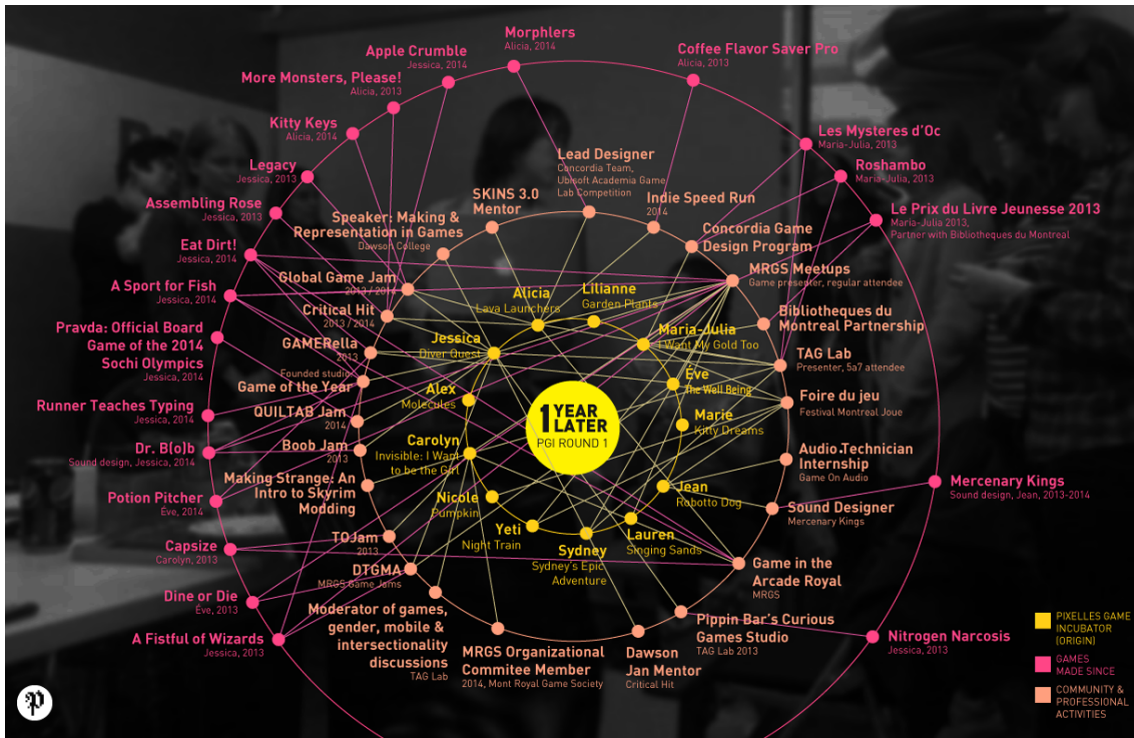


Figure 4.2: Ripple effect one year after the first Pixelles Game Incubator in 2013.

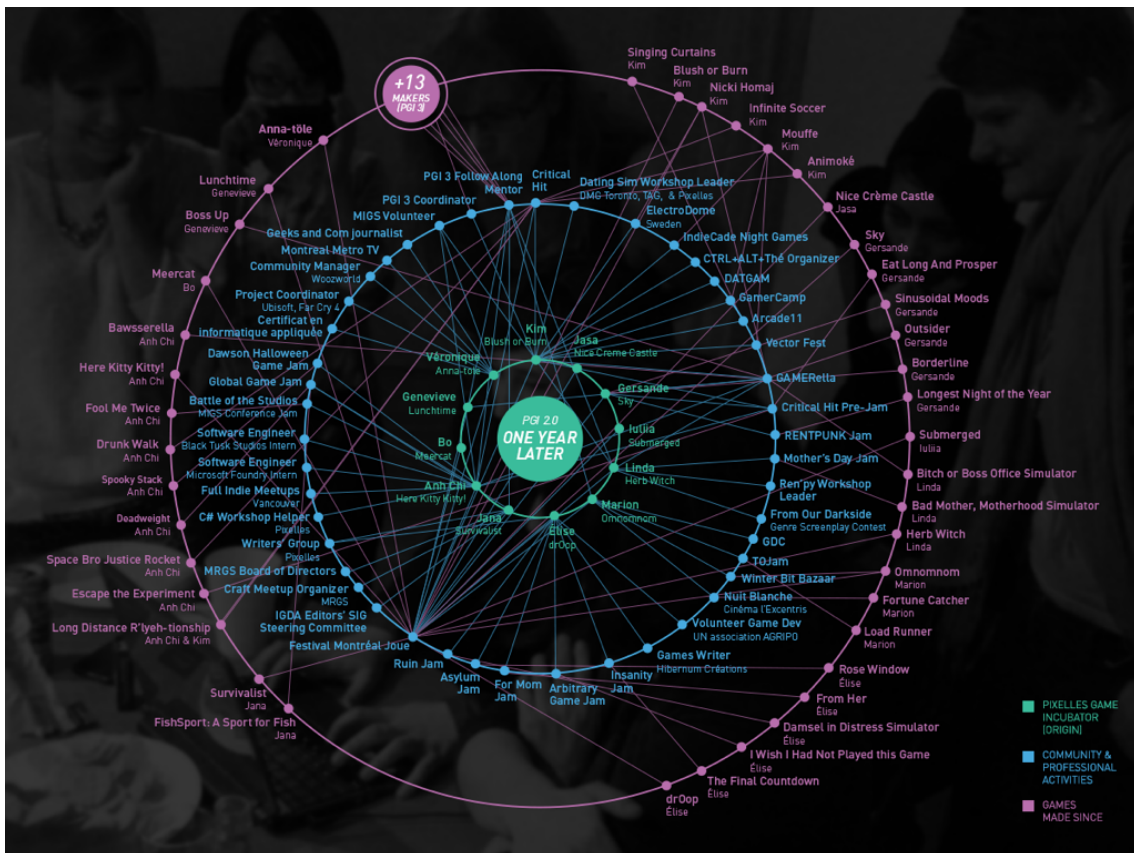


Figure 4.3: Ripple effect one year after the Pixelles Game Incubator in 2014.

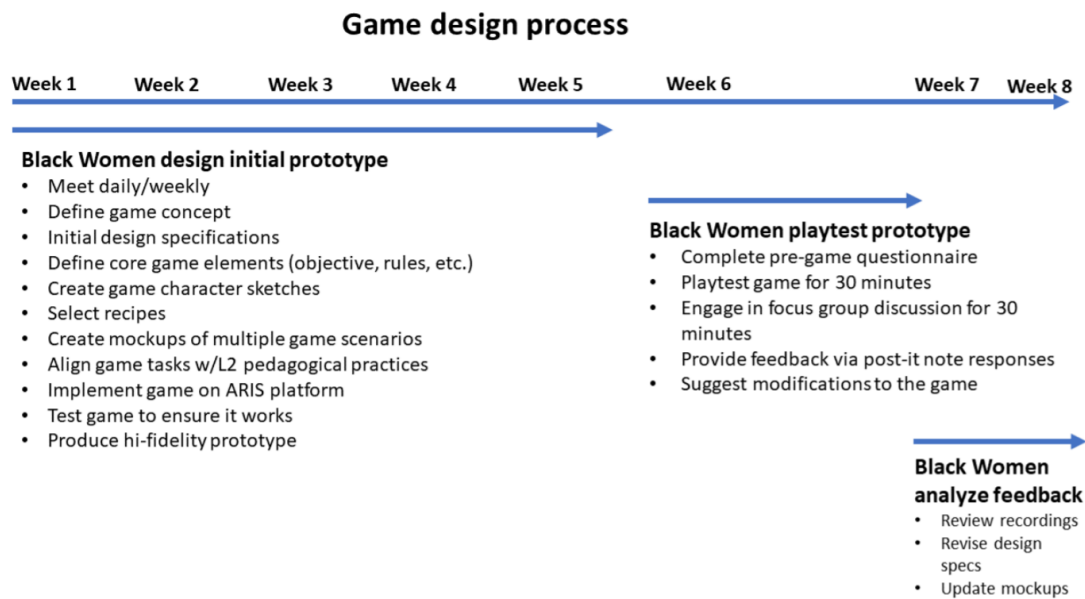


Figure 4.4: Game design process using the Black Female Thought Framework [RI20].

sectional BFT framework. The diagram emphasizes having Black women at the center of decision making at all stages: "Black Women design initial prototype", "Black women playtest prototype" and "Black women analyze feedback".

In the general context of game design this approach translates to having people with intersectional experiences on the team during all stages. From brainstorming over development to testing the team must consequently ask questions of how the game can be improved.

4.4.2 Lenses for DEI

In his much cited book "The Art of Game Design: A Book of Lenses" Schell [Sch08] describes 100 lenses that can be used to work on many different areas of game design. Every lens focuses on one aspect, such as Problem Solving, Flow or Competition, and consist of a short instruction, to help the reader get into the right mindset, followed by 2 to 8 questions ("Ask yourself these questions"). A few lenses offer further instructions, reflections or clarifications. For example, the Lens of Action focuses on what players are able to do and what they cannot do. Schell suggests to reflect on multiple points, such as operational actions and their resulting actions or how they can be adjusted to fit the game best.

Some of the lenses mentioned in his book start to cover DEI aspects, such as focusing on the player's point of view (Lens of the Player) or providing players of all skill-levels with a good game experience (Lens of Fairness). While he mentions that "[a] team of tremendous diversity is required" to create a game, there are no other mentions of diversity, equity or inclusion elsewhere in his text. [Sch08]

This calls for an extension to the existing lenses: The lenses of diversity, equity and inclusion. Drawing from the definitions of diversity, equity and inclusion in chapter 3 I developed the following additional lenses:

DEI Lens #1: Lens of Diversity

Diversity in the game will help players identify more with the characters and the game.

Ask yourself these questions:

- Are characters authentic in their looks, language, etc.?
- Is a character playing into existing stereotypes, e.g., helpless "damsel in distress" or POC as a gang member, and is this necessary for the gameplay?
- Is the diversity of players represented by the game's characters?

DEI Lens #2: Lens of Equity

To give every user the same possibility to succeed, some need extra support or adjustable game options. Equitable treatment helps to offer all players an enjoyable experience.

Ask yourself these questions:

- Who benefits from the current setup and who is limited by it?
- Are there options to adjust the game for different needs, e.g. plain language, input devices, subtitles?
- Do tutorials or in-game support exist for players with less experience?

Make sure to include participants with impairments from all relevant categories (motor, cognitive, visual, etc.) as well as a generally diverse group in playtesting to ensure no one is disadvantaged in the game.

DEI Lens #3: Lens of Inclusion

Building an inclusive environment for all players makes them feel welcomed and improves their experience. Especially in games where players interact with each other, it is important to provide room for uniqueness (character design, playable roles, etc.) and belongingness to the group (in-game groups, chats, etc.).

Ask yourself these questions:

- Is (play style) diversity valued in the game?
- What does the target group look like?
- Is the game inclusive for all members of the target group?
- How can the diversity of users add new perspectives and enrich the gameplay?
- Are there possibilities to report exclusive behaviour (racial slurs, sexist comments, etc.) aimed at other players?

4.5 Academic Research on DEI in the Games Industry

4.5.1 Understanding the Impact of QPOC Representation in Video Games

In their paper "Understanding the Impact of QPOC Representation in Video Games" Smith and Decker explore the current state of the representation of queer people of color in video games and other media by analysing a survey amongst members of that group. Their findings reveal that many QPOC do not feel properly represented and that they would like to see themselves authentically and positively represented in future games. While there have been advances in representation of race, sexuality and gender individu-

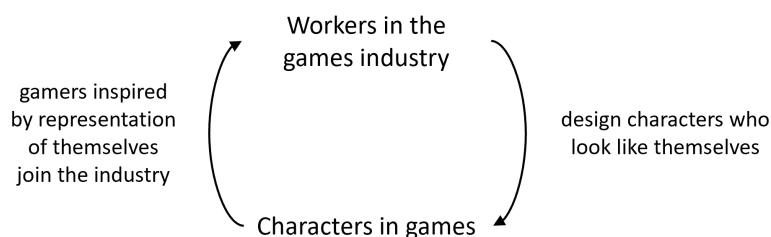


Figure 4.5: Interaction between workforce composition and in-game character diversity [SD16].

ally, intersectional diversity, such as black gay women, is still severely underrepresented.

Figure 4.5 visualises the connection between the games industry workers and the characters seen in games. Smith and Decker argue that the current white heterosexual male dominated workforce is visible in the characters they design. This leads to a lack of authentic diverse representation and does not create an inviting environment for underrepresented groups. Contrary, an increase of diversity in the workforce or positive representation of marginalized groups in games will have a positive effect on the other. [SD16]

While the paper does not offer practical strategies to increase DEI, it offers an important insight on intersectionality in games. It is a necessary step to raise awareness and understand the interactions between workforce and representation.

4.5.2 Interrogating the Role of CSCL in Diversity, Equity and Inclusion

In "Interrogating the Role of CSCL [Computer-Supported Collaborative Learning] in Diversity, Equity and Inclusion" Gomez et al. discuss DEI, connected core challenges in design and possible solutions. They criticise the outdated picture of the stereotypical white male gamer and reason that at this point anyone can be a gamer. Though the market is already diverse, many games still lack around DEI. The authors name language, differentiation and identity as central issues when upscaling CSCL applications as well as games for a diverse user group.

"Not seeing the self, reflected in a regularly occurring activity, like gaming, can be detrimental, noting the same longterm effects of depression, detachment, disengagement, and low self-worth are present as out comes, as you would see in everyday racism." [GGW21]

When designing a game it is important to consider language complexity, availability of languages other than English and accessibility for different impairments. Differentiation is relevant in the context of experience with the game and mechanics and can be achieved by offering additional support and guidance for less experienced players or by personalised gameplay experiences. Identities displayed in games should be as diverse as society and an authentic representation, instead of playing into stereotypes.

In all aspects the goal is to minimize the disadvantages individuals might have due to their limitations and increase the feeling of being included for as many users as possible. Any design should be with the user in mind and not intentionally overlooking DEI issues. According to Gomez et al. this can be achieved best by teams with diverse backgrounds in primary (age, gender, race, etc.) as well as secondary (beliefs, work style, education, etc.) dimensions. They also mention the possibility of machine learning to personalize

content.

They emphasize the importance of intentionally designing with DEI in mind from the beginning and not just as an afterthought. "In short, intentional design means seeing, viewing, and harnessing [users'] variation." [GGW21]

4.5.3 Becoming Gamesworkers: Diversity, Higher Education, and the Future of the Game Industry

In her article "Becoming Gamesworkers" Alison Harvey covers how the prevalent state of the games industry, with crunch time as a common occurrence and "aggressive and conservative performances of labor bravado", hinders the establishment of a more diverse and inclusive work culture.

She argues that the limitation to higher education (HE) as the only possible way into games development and almost all diversity initiatives being aimed at students, gives many people a disadvantage for joining the industry, especially in countries with high study fees. This adds to the false tale of the game talent pipeline where the wrong perception persists that feeding the market diversity (through unis, programs, etc.) leads to diversity in the workforce. Intersectional barriers remain in addition to the lack of acknowledgement of other ways into the industry, such as informal education or career changers.

HE highlights the importance of teamwork and collaboration of complementary specialists while at the same time a "hyper-individualistic ethos" hinders the previous. Therefore, students are already mentally preparing for a competitive work environment and develop a mindset of fear and fighting for yourself instead of mutual support. Additionally, HE often treats students as future workers as well as advising to develop resilience in the face of future financial insecurity and lack of available jobs. According to one instructor the purpose of education in and of itself should not be sabotaged by catering to industry standards.

These standards are shaped by an unhealthy industry culture. This includes normalized exploitation, such as regular crunch time and unpaid overtime, a culture of job anxiety, competition instead of collaboration and a still heavily meritocracy-based hiring discourse. Within this discourse countable output is valued higher than innovative and creative contributions and providing equal chances.

Counteracting these exclusive industry standards is a complex task. While positive action still encounters resistance from many games workers fearing for their own prospects in the industry, grassroots action - supporting women, BIPOC and other minorities early on - shows potential to change the status quo. This is an important part to change the industry but further action, such as unionization, is necessary to build a better working environment for all. Making these topics part of the higher education curriculum as well as raising awareness among workers already in the industry is essential. [Har19]

5 The Framework

This chapter offers a practical, holistic approach to increasing DEI in the game engineering process. It is meant to give some direction on which areas connected to the process can be improved and how to work on this. The areas we are focusing on are the team, the game in terms of the finished product and how it adheres to DEI guidelines, the community and finally the game development process.

5.1 Company Culture and the Team

A diverse team is essential for innovation [GMB18; Sch08] and understanding new and established target groups which in turn is enhancing the product. It is also an indicator for its success. [Har19; NV15]

The team needed to release a video game consists of multiple roles, including artists, developers, project managers and other roles, such as marketing, depending on the scale of the project. Depending on the company size one role can be shared by many people or one person can act in more than one role during the process. Many aspects, aside from individual skillsets related to game development, influence who to hire for a project. To get the best results, all the unique individuals coming together to create games need to act in an inclusive way towards each other and be managed with DEI in mind from the start. [Sch12; Har19]

In addition, a diverse company attracts diverse employees. This is beneficial for a company when diversity is treated as the asset that it is. This kind of public presentation is often referred to as employer branding. [Sch12]

5.1.1 Talent Management

Managing diversity is an important part of today's Talent Management according to Scholz. [Sch12] Talent Management is closely connected to human resource management and focuses on the areas mentoring, corporate identity, employer branding and job rotation, including on-the-job trainings and retention through vertical mobility within the company. [Ter22] In the current "war for talent" talent management is essential to identify and recruit talented people and then manage and train them. This way of human resource management helps to retain talented employees. The games industry is a creative industry delivering "cultural goods" [Sch12] and is therefore often project oriented. Even in a project-oriented environment it is beneficial for companies to keep or rehire employees. This saves money for hiring processes that can instead be redirected into other areas, including trainings and mentoring programs improving employee loyalty.

Scholz focuses on the cultural aspect of diversity in his work. He differentiates cultural diversity (background) as a fixed factor in opposition to cultural intelligence as a variable that can be improved through trainings and open conversations regarding DEI topics and

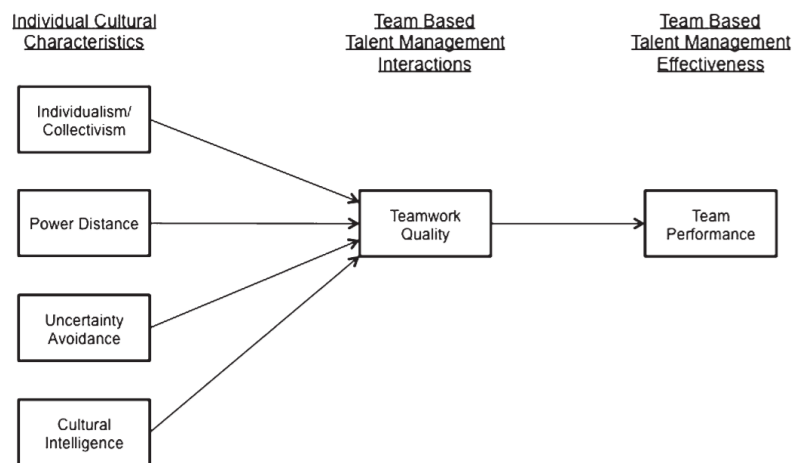


Figure 5.1: Structural Equation Model [Sch12].

company culture.

Figure 5.1 shows the connections between Individual Cultural Characteristics, Team Based Talent Management Interactions represented by Teamwork Quality and Team Based Talent Management Effectiveness reflected in Team Performance. Scholz splits the Individual Cultural Characteristics of the team members into four domains: Individualism/Collectivism refers to the level of individuality in a team member's work style. A majority of collectivists in a team has a positive impact on the teamwork quality. Power Distance is about power distribution in a team. Especially in creative industries teams benefit from flat structures and decentralizing their work. This includes groups working individually and avoiding micromanagement. These practices align well with an agile work approach. Uncertainty Avoidance addresses the level of threat employees feel in uncertain or unknown situations. In general, low complexity of a project together with a feeling of certainty (e.g., about the outcome of a project) positively influence teamwork and problem-solving abilities. In the creative roles of video game development, low uncertainty avoidance is a common trait. This encourages new innovations with an unclear outcome. The last domain, Cultural Intelligence refers to the ability to adapt to and work in different cultural settings and with a diverse team. Scholz found that this is more important for the creative roles in game development. Team members with analytical roles are less affected by cultural intelligence due to their common background in the technical field. These four dimensions offer an outline of what to look for in a new team member to ensure good teamwork. How well a team works together has a noticeable impact on the team's performance; this is applicable for both creative and analytical jobs. [Sch12] The guidelines on Individual Cultural Characteristics should not be treated as absolutes as every project team will have a different team size, composition of existing members and varying needs in other areas.

5.1.2 Responsibilities

With every new development, such as developing and implementing DEI measures, it is necessary to have someone keep track of the progress.

There are several variables to consider: Should a single person or a committee be responsible? Should it be a full-time or a part-time role? Should the responsibility lie within the team or is an external solution preferable?

Depending on the size of the project the answers will look very different. Nevertheless, the lack of research on best practices for DEI responsibilities in games development hinder us from getting a concrete answer. Some authors offer more general information and ideas on managing DEI and responsibilities.

For their work on the meaning of diversity and inclusion Roberson conducted a survey on factor association with the two terms. The findings reveal a very high (.94 - inclusion) or high (.89 - diversity) positive correlation of "Shared commitment to organizational goals" in the context of both terms. "Shared accountability and responsibility" have a very high positive correlation (.93) to inclusion according to the results, while the correlation to diversity is only moderate (.51). [Rob04] These correlations are an indicator that involving everyone in committing to DEI goals as well as holding everyone accountable is key to successful DEI management.

In their work on inclusion in the workplace Shore suggests implementing accountability systems for inclusion. The system should be a mandatory part of performance management which is aimed at optimizing an employee's potential. [SCS18] Part of this potential is their ability to collaborate with their diverse colleagues and is therefore closely connected to DEI. Training management in the skills necessary to fulfil their added responsibilities supports this approach. For companies or teams with little to no experience it will be helpful to get an external to help with DEI topics.

Everybody should be responsible of making the workplace an inclusive space. Furthermore, all team members should have opportunities to openly talk about their personal stories, perspectives and experiences. This not only makes them feel unique and included but is also a valuable contribution to the development process. A game where every team member can make suggestions that help cater to various target groups, will have many user cases already covered before testing even begins.

5.1.3 Trainings and Education

Trainings and education play a valuable role in increasing DEI throughout the company. This works best when simultaneously making lasting changes to improve on fairness and inclusion throughout the company.

Leadership commitment is essential to successfully implement DEI measures. Here, commitment means understanding the value and impact of DEI, aligning corporate values with DEI goals and defining and sharing accountabilities. [GMB18] Company culture can only change when everyone, from CEO to intern, works together to build a better workplace. From the management side, this looks like creating new positions, such as cultural consultants or a DEI department, and giving employees dedicated time to learn about DEI on company time beyond the standard trainings. The website Racial Equity Tools (subsection 4.3.2) and the following paragraph show possible options to offer as additional resources. From the employee side, it is important to join the offered trainings with an open mind and work towards eliminating your own stereotypes and prejudices.

Furthermore, everybody has unconscious biases in various areas based on lived experiences and learned stereotypes, including seemingly positive ones. Learning about these without judgement by others or oneself helps to raise awareness. This in return is a start-

ing point for working on one's mindset and start counteracting those biases to improve relations in and beyond the team. Free online resources, such as Project Implicit, work with an Implicit Association Test (IAT) to find biases in one area at a time. These tests cover biases against age (young - old), race (Black - White) and disability (disabled - abled) among others. [Pro22]

After all, the positive effects of diversity trainings without a change in company culture are minor. [NV15] Creating a culture of diversity, equity and inclusion in a company must happen on all levels and needs to foster an inclusive culture that celebrates commonalities and differences alike. Resources and actions, such as those recommended by the Federal Anti-Discrimination Agency (subsubsection 4.1.1), help to improve not just on superficial awareness but deeper understanding and creating an equitable workplace.

5.2 The Game

The more diverse the team working on a game is, the easier it will be for them to use their different points of view to create a diverse and inclusive game. Moving away from who develops the game and towards the content of the game itself, we will look at three major aspects to consider: Storylines and Tropes, Character Design and Authenticity.

5.2.1 Storylines and Tropes

Video games have historically underrepresented and marginalized groups through certain storylines and tropes; woman have been hypersexualized and representation of POC has been playing into stereotypes. Queer characters and characters with disabilities have been missing almost completely. [RG18] Many tropes and storylines of current games are still playing into outdated stereotypes and gender roles. [Web20; Har+20] The degree to which this leads to racist or sexist real-life behaviour is subject of many research papers. [Des13; SD16; Gab+16]

Anita Sarkeesian has been making videos about pop culture from a feminist point of view since 2009. Talking about power dynamics between characters in video games she states, "Regardless of their gender, race, class or sexuality, a person is more than a tool. And more than a burden. And games can and should give us mechanics and stories that reflect that." [Fem17] There are endless possibilities to realize this concept. One idea could be a sidekick with a three-dimensional character and options for meaningful interactions between the player and the NPCs.

Generally, the storyline of a game and its different tropes have major impact on how the player perceives the game and characters in it. This in turn can lead to internalizing stereotypes. Especially, tropes showing women as sexual objects (e.g., wearing revealing armour different to their male counterparts) or as helpless without a man (e.g., the 'Damsel in distress' trope) have been critiqued over the last years. In this regard, critique has led to changes in some games, such as female characters wearing less revealing clothes or women as the protagonist. In other areas, such as the representation of POC, there is still a lack of research and awareness.

5.2.2 Character Design

Character design is closely connected to the storyline. But often, non-white, non-male characters are heavily stereotyped, be it to fit a certain narrative or simply due to the lack of awareness. This results in an inaccurate picture of the groups represented by those characters. [RI20; Har+20] It is essential for the continuous success of the gaming industry to authentically represent all player groups, especially minorities who only have seen themselves stereotyped in games or not at all. Every designer should ask themselves, are there any reasons the protagonist cannot be female, queer or Black or all the above; and how can I make sure to bring this character to life in an authentic way?

As part of their Game Development Process based on Black Female Thought (subsection 4.4.1) Rankin and Irish asked the participants what they want to see in the game. They came up with four key points to consider [RI20]:

- "provide authentic cultural experiences
- feature intersectional game characters that reflect real life experiences
- accurately portray the diversity of Black women's bodies
- provide opportunities for players to customize game assets"

This list of key points can be used in various game contexts. The accurate portrayal of Black women's bodies would need to be adjusted to the represented group.

During their project they had only Black female-identifying people on their team to develop a L2 Spanish learning game. Through their intersectional point of view the participants were able to consider expectations of other intersectional groups, such as Latinx people. For example, they asked to include native Spanish-speaking characters with lighter skin tones and straight hair. With designs like that biracial and non-stereotypical looking Latinx are validated. [RI20] This approach (BFT) or hiring cultural consultants can help bridge the gaps in design and fill them with lived experiences and authentic content.

5.2.3 Authenticity

Authenticity is a crucial aspect in a game to have players relate to the world and characters. Trainings for team members or management will improve the general awareness in the company and team. When it comes to the product itself hiring a Cultural Consultant is a possible way to ensure the authenticity and inclusivity of the final product. Cultural Consultants help to analyse the existing features and make suggestions for changes to improve on specific topics. This has been successfully used in other parts of the entertainment industry, such as movies and tabletop games. [Ste21] This approach is similar to the idea behind Black Female Thought (subsection 4.4.1) where the personal intersectional experiences of team members are used to reflect on and adjust the content of the game to fit their needs and those of diverse target groups better.

5.3 The Community

Involving the community is a powerful tool in developing diverse, equitable and inclusive games. The community is the final boss in the games development process, they de-

termine the financial success of the game and can make or break companies (e.g., through social media). When game developers involve the community early on, they get the possibility to learn from their experiences and can better cater towards them, therefore avoiding games flopping. There are many ways to get the community involved. Depending on the project size, it can be beneficial to have a dedicated community manager that keeps track of everything happening.

5.3.1 Community Management

The rise of gaming into the mainstream diversified the community immensely. Especially in AAA games there is a large diverse community interacting with each other in and outside the game. A community manager connects the company with the community and vice versa. Their role includes community building, fostering positive interactions between players and keeping the community updated. There is still a lack of research on best practices for the profession of a Community Manager. [AGA21] Projects, such as ethicalgames.org or fairplayalliance.org, address problems like this with their work based on academic research and the knowledge and experiences of industry professionals. They offer guidelines on different topics, such as Community & Events or Player Safety. Those guidelines can help Community Managers in their work.

5.3.2 In-game Community Regulation

Interactions in game, such as (voice) chats or playing together, are intended to make the gaming experience more social and fun. To maintain a positive experience for all players it is important to set a Code of Conduct for players that is easy to understand and act on. Penalties for in-game violations of these rules need to be clear to the player and implemented without exceptions. AI can be used to monitor chats and obscure slurs and profanities, while at the same time informing the player who posted the text of his misbehaviour. Similar, other players should have an easy option to report such comments or trolling. The consequences for further violations should always be made clear to the player. Every player should be made aware of all actions that lead to penalties, such as temporary or permanent bans, to avoid all forms of harassment from the beginning.

In some games, especially with clan-like structures, it can be useful to appoint community moderators to ensure a positive tone within groups.

5.3.3 Community Engagement

Engaging with the community via social media or streaming is not just important for marketing a game and building loyalty to the brand but also to learn from the members of the community.

When communicating it is essential to listen without judgement. Unique experiences and problems (e.g., gaming with disabilities) might have common solutions that are already identified by those individuals but not the game developer. A useful tool are surveys about features wanted by the community or about problems that have come up. This can be easily done via social media, such as Instagram Stories, or via newsletters.

These platforms can also be a space to challenge the community to be more inclusive and normalize diversity on all levels from the development team to the community. Co-ops

with diverse gaming content creators are another possibility to change the narrative of the stereotypical gamer. This helps to ensure that exclusive comments in-game or on other platforms don't set the whole tone of the game.

Content on forums, social media and video or streaming platforms can support gamers who are new to the game to get started. Community Managers could make posts with open comment sections for people to connect that are not part of the community yet. Measures like this can help reduce the initial obstacles when new to a game or gaming in general.

5.4 The Development Process

After this look at the team, the game and the community, we are moving onto the last step putting the pieces together to create a game: the Game Development Process.

While the following paragraphs will mainly refer to agile methods and how to incorporate DEI in this framework, many of the ideas can be easily translated to other approaches, such as the traditional waterfall approach.

Agile development is easiest explained in comparison to the traditional waterfall model. The waterfall model is defined by the idea of finishing one stage or task before beginning the next one. A lot of the planning must be done in advance since changes later in the development process are costly and hard to implement. Working with agile methods offers a more flexible approach. Developers answer many questions about details along the way while working on the individual parts of the project. Team members often work on different aspects in parallel and in an iterative and incremental fashion. This can look like implementing and testing only the core of a gameplay feature before continuously expanding and improving it.

Figure 5.2 shows an extension of the agile games development process based on a model by Stacey and Nandhakumar [SN08]. The original model (black) shows the cycle of creating concept, design and code followed by playtesting. Depending on the results of the playtest the development team will start a new iteration at one of the previous steps. When the playtest satisfies all requirements the cycle ends. The extension of the model (blue) adds an additional step: Set DEI goals. This step should be initially executed before all others. Approaches from section 4.4, such as the Lenses for DEI or Black Female Thought, help to determine the goals. After every step from concept over design to code the work will be tested for the fulfilment of the set goals. The small blue circles visualize these checks. At any point of the development and implementation it can become necessary to adjust the DEI goals; the arrow pointing from the blue box (Implementation) to Set DEI goals reflects this option.

The model gives an overview of the whole development process and serves as a visual reminder to incorporate DEI into every step of the process. In the following sections we will go into more detail of how to bring DEI into Pre-production, Production and Post-production. This split works best with the agile approach since steps like design, implementation and testing can all happen in parallel on different parts of the project and are iterated over repeatedly.

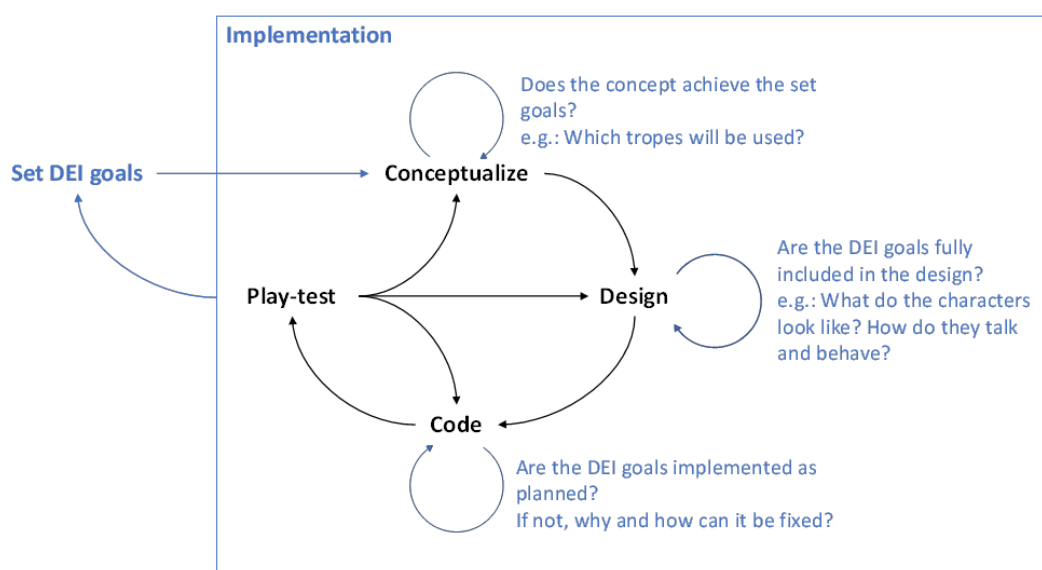


Figure 5.2: Extended model of the agile development process with DEI tests during all stages (adapted from [SN08]).

5.4.1 Pre-production

Designing with DEI in mind from the beginning, instead of an afterthought, will help avoid major changes later in the development process. This is reflected in Figure 5.2 by the step of setting DEI goals.

Every new project should start with a team briefing to discuss DEI topics and set goals with the whole team. Including everyone at this stage helps to raise general awareness and increases involvement that is necessary to stick to the set goals. It is important that these meetings do not become boring and just go over the same requirements every time. There should always be space for an open discussion where everyone feels welcome to provide comments and to critique existing standards. Establishing this welcoming environment can happen through interactive discussions, rather than one-sided presentations, of current event in the gaming industry, such as the case explained in section 4.2. Valuing all team members works best through highlighting their unique points of view. Experienced colleagues can draw from experiences with previous projects while new members can provide new perspectives from their personal experiences. This difference in seniority within the team is only the first of many diversity aspects that can benefit the game development. In teams of all sizes there will be certain diverse characteristics that are underrepresented. Therefore, the team should always question which perspectives are missing and include those in their goals when applicable.

After this initial brief the concept can be further developed, always checking if new ideas fit the DEI goals. Furthermore, an option to early consider the player's perspective is a focus group on DEI. The results can be integrated into the existing goals from the team's side.

The team should track their decisions in a GDD or a similar document to guarantee the DEI goals are part of the official requirements and all team members are aware of them.

This is also useful for external partners for potentially outsourcing parts of the development, such as voice acting. For example, a possible DEI requirement could be to bring characters to live authentically. In the case of voice acting this could be implemented by having voice actors who can identify with the characters.

5.4.2 Production

All the way through designing and testing DEI frameworks, such as BFT (subsection 4.4.1), should be used. This means regularly questioning if new designs and features adhere to the set goal or require new goals to be set.

With agile work, the easiest way to incorporate regular DEI checks is to connect them to regular testing. User testing is the most promising for testing how diverse a game is perceived by the player and how inclusive the game feels to them. Therefore, the focus of this section will be on this type of testing. Nonetheless, DEI requirements should be part of all testing.

Securing human-centered requirements, such as the DEI goals, cannot fully be done by automated testing. [San+18] Nevertheless, automatism should be established to have developers check their material for compliance with the set DEI goals before submitting their design or merging their code. These could look like pop-up windows that list the DEI requirements and ask for confirmation and a mandatory comment on how the goals are already fulfilled or recommendations for possible adjustments.

For the user testing a diverse group of testers is essential to cover all aspects of DEI. The group therefore includes members from the target group and experienced gamers as well as their counterparts. A balanced ratio of male to female testers should be attempted, while also including non-binary testers wherever possible. Testers should reflect the diversity of ethnicities and race in the countries the game will be published. People with different disabilities should be part of the test group; this is especially relevant when testing alternate control mechanisms or, more general, adjustments directly aimed at them (e.g., testing high-contrast patterns for colour-blind players). Ideally, the testers represent a variety of intersections of the different diversity aspects. This is not a complete list of diversity in the test group and should be expanded as needed. More aspects of diversity are mentioned in section 3.1.

The following list offers possible questions and DEI aspects to consider for user testing. This list can be used as a starting point and needs to be completed based on the individual DEI goals. The type of question (scale, yes/no, open) is noted in brackets.

- Do you feel represented by any characters in the game? (yes/no)
- How authentic did the characters/world feel? (scale)
- Did you notice any (positive or negative) stereotypes in the game? (yes/no) If yes, please elaborate. (open)
- Did you have any problems operating the game? (yes/no) If yes, what are these problems connected to? (open)
- Optional for people with impairments (motor, cognitive, visual, etc.): Are there any features missing that would help you to enjoy the game more? Are there features/mechanics that need improvement to adapt to your needs? (open)
- How confident about game mechanics did you feel after the tutorial? (scale)

- Are there mechanics that you would want to add to the tutorial? (open)

Both, moderated sessions and diary or other longitudinal studies, are possible options to answer questions regarding DEI. [Bry15] Depending on the type of question one of these might be preferable over the other. For example, testing the tutorial for accessibility can be done in a moderated session, while questions about in-game representation and authenticity will get better results through a longitudinal study.

DEI testing could also happen as a cross-unit exchange, this way the testers are already familiar with the goals and simultaneously learn about their colleagues' work. Cooperating and learning about each other's work improves team relations and offers the chance to appreciate your team members for their work; this fosters the two factors of inclusion, belongingness and uniqueness (section 3.3).

5.4.3 Post-production

After the game is released and feedback from the community is available, the team should discuss all DEI problems and solutions in a project debrief and track those in a post-mortem doc. Collecting data like that will help to improve and optimize future projects.

For online games with continuous updates, this step should happen after every release to take away learnings for the next round.

After the commercial release the community manager's (see subsection 5.3.1) main work begins. Now the community starts to actually play the game, creates mods and makes online content surrounding the game, such as social media content, guides for the game or streaming. Ideally, this creates an inclusive environment for players from all different backgrounds. The community manager helps to keep a positive tone across platforms and reports often discussed topics to the company to work on, either in updates or future games.

6 Discussion

The current state of diversity, equity and inclusion in the games industry served as motivation for this work. In trying to answer the question of what a framework for the game development process and the surrounding elements should look like to change this current state, I systematically followed the research questions. In doing so, I was able to analyse the meaning of DEI realizing its significance for the modern workplace. Next, I found that while there has been a legal basis protecting diversity for decades in industrialized countries, there is still no equality for many people with diverse backgrounds. Additional resources and frameworks supporting those underrepresented for the longest time were presented. Related research on the gaming industry and DEI was considered before putting the pieces together to get a holistic framework. The framework offered guidance on four aspects related to the game development process, company culture, the game as a place to make DEI reality, the community and the development process.

To recap the findings of this thesis we will follow the structure of the research questions:

- RQ1: How does the scientific community define Diversity, Equity & Inclusion today?
- RQ2: Where in the game development process can/should DEI elements be included?
- RQ3: What kind of DEI resources and measures have been suggested over the last few years by government authorities, companies and the gaming community?
- RQ4: How can existing DEI measures be adapted into the game development process?

Following RQ1 we were able to find a wide consensus on what DEI in the workplace means in today's society as well as the major shift over the last decades on what the term diversity includes. (see chapter 3)

One of the biggest current controversies around DEI in the workplace is the question whether to use "identity-blind" [NV15] or "colorblind" [GGW21] practices for conflict resolution, hiring, etc. While on the first look treating everyone the same seems intuitively right, this bears the danger of ignoring individual needs and unique qualities. In opposition to this Roberson suggests the use of "identity-conscious structures". [Rob04] This approach takes an individual's background and skills into account. Both approaches have advantages and disadvantages.

To get a better understanding, we will use the example of a company which wants to hire a new employee. An identity-blind method for the early hiring process is to have applicants fill out an online form about their education, work experience and information relevant to the job. Applicants only enter a contact email (not visible to the evaluator) but no name or picture. This helps to avoid bias but dismisses individual circumstances. On the other hand, in an identity-conscious hiring approach the applicants diverse background together with their education and personal experiences would be considered over pure meritocracy. This could mean that a candidate is preferred over another with a better

final grade in the same degree based on overcoming personal obstacles, such as being the first in the family to attend university or having to work while studying. This second approach follows the idea of equity. By doing so individuals from diverse backgrounds are supported in reaching their full potential. Nevertheless, this requires HR employees to overlook their own bias and is more laborious than the identity-blind practice. While people value fairness, identity-consciousness has often been met with disapproval from more privileged groups. Therefore, many companies moved away from this practice. [Rob04] Overall, both approaches have the potential to increase diversity and inclusion.

The research for RQ1 also revealed a need for more reliable information regarding DEI in the context of the games community and video games. This can help to answer questions, such as "How is the dynamic in the community different from the workplace?", "Is 'positive discrimination' in video games necessary?" and "How does diversity in games influence the industry and vice versa?".

RQ2 and RQ4 turned out to be closely connected and in combination led to the structure and recommendations in chapter 5. Nevertheless, they will be discussed independently here.

To answer RQ2: When looking at game development and its surrounding processes DEI elements can be included everywhere in one way or another. Every step towards increasing DEI is a step in the right direction. This abundance of possible options can make it difficult to get started. Harvey argues that DEI measures and changes in industry culture must already start during Higher Education. [Har19] Other authors focus more on the game itself and recommend starting by increasing representation of minorities. [SD16] Depending on the author and research area different engagement points are in focus. This makes an overview of all the possibilities and easy to follow ideas, such as this thesis attempts, a valuable resource.

Focusing on RQ3, chapter 4 offers a selection of existing resources, ranging from legal settings over community projects to academic research. The chapter focuses more on these rather than actions by individual companies since there is no unified framework for DEI used by all games companies. In addition, there is evidence that there are major industry players acting passively rather than proactively, such as EA (see chapter 1) reacting to requests of the community or Activision Blizzard (see section 4.2) reacting to employee accusations and multiple lawsuits. The multitude of resources leaves us with the question which of the existing frameworks and tools are the work best in pushing DEI in the game development process. While projects, such as the Games Incubator initiated by Pixelles (see subsection 4.3.3), and recent research (see subsection 4.4.1), show promising results in increasing DEI. In turn, this implicates the importance to further support and use these strategies. The effects of other measures still have to be thoroughly tested.

Finally, RQ4 deals with how to adapt existing measures and techniques. Depending on the area in focus the answer differs (see chapter 5). All the proposed measures will help to increase DEI. Many publications agree on the positive effects of well managed diversity. [Sch12; NV15; GMB18] When it comes to the effects of DEI in games there is a consensus about the positive impact on underrepresented groups seeing themselves represented authentically. [RI20] What is still to be determined are the economic and interpersonal effects of increasing DEI in games. Possible research problems in this regard could be how do diverse character options affect sales or can authentic representations of diverse characters reduce prejudice.

What became clear during the research is that a holistic approach is necessary to enable

short- and long-term changes for the better. DEI cannot be a theme in only one part of the process, otherwise any changes are not sustainable. This should encourage all members of the games industry, individuals as well as corporations, to improve DEI in all areas.

7 Conclusion and Outlook

This thesis aimed to help understand the meaning of diversity, equity and inclusion in the context of the game development process. Based on this knowledge it offers a framework to support any game developer or company in enabling DEI in the workplace, the game itself, the community and the development process. This multi-level framework was created by analysing existing resources and where they can be applied.

The material in this thesis is a collection of existing and new ideas in the context of DEI in games engineering. With this as a base it would be possible to develop a workbook with exercises and detailed step-by-step instructions for games companies or project groups who want to increase their "DEI score". This "DEI score" could be based on a questionnaire that can be filled out by interested parties and their employees before their project and again after implementing the recommended measures. This could help to visualize this otherwise very abstract topic and motivate the team through gamification and beating their score from the start.

Using the "DEI score" questionnaire additional research could be conducted about the current state of games companies. Analysing employees' views regarding DEI in their company and the company practices in this area could help to develop a better understanding of the state of the industry. This will aid the development of a practical step-by-step workbook.

Additionally, a workshop based on the gathered information could be created to accompany the workbook. Both, a workshop and a workbook, can be useful tools to increase DEI in the games industry.

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