

# A Qualitative Study of the Estonian Video Game Industry Expectations

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## Abstract

This paper presents a qualitative study of Estonian video game companies. In total, 11 companies were interviewed regarding their company values and expectations for employees. The interviews consisted of two parts. First, a regular semi-structured interview was conducted. In the second part, we used three persona sheets based on Bachelor graduates to provide an imaginary but tangible hiring situation for the company. This allowed us to explore in more detail what the companies consider important in certain employee candidates.

Findings show that a strong common theme is that people working on video games need to be aware of the player and how the work shapes the game experience. Many companies encourage a work ethic based on individual responsibility and ownership in their employees. Interdisciplinary communication is very valued as well. Several companies said that employees need to be good fits, and a few even said that employees need to feel like part of a family. One company implied that, unfortunately, employees should be ready for crunch time.

Overall, this paper depicts the peculiarities of different Estonian video game companies. While some of these might be specific to Estonia, we believe companies elsewhere also exhibit such properties. Thus, this observation paper provides insight into the video game sector for video game curriculum designers, video game scholars, and the video game industry itself.

**Keywords:** video game industry, work ethic, employees, interdisciplinary teamwork, graduate personas

## 1. Introduction

Creating video games is very involved and challenging due to their inherent complexity. In video games, as in general ICT solutions, designers always need to consider the player and their experience as a whole (Styhre & Remneland-Wikhamn, 2021; Wajcman, 2007). This assemblage that is the video game includes three difficulties (Jagoda, 2018): *mechanical* (accuracy, dexterity), *interpretive* (interpreting the auditory, visual, and textual content), and *affective* (the affection/feeling of the player). Thus, people working on video games must meet the high expectations of the medium for designing the user experience.

The value that a video game produces comes from different parties that make up the value chain (González-Piñero, 2017). The primary roles in the video games value chain in the contemporary dematerialized market (Michaud, 2017) are the development company, publisher, and distributor (Kelly et al., 2014). There are three financial models in such value chains. First, financing is completely in-house due to the vertical integration of the developer and publisher. Secondly, the publisher is in control of the finances of the development done by the developer. Thirdly, the financing is independent of the publisher (Teipen, 2016).

Companies utilizing this last model are called indie companies. While a large part of the industry has grown out of hobbyists exploring creative freedom (Saarikoski & Suominen, 2009), indie developers can be considered the ones that nowadays exercise that creative freedom (Crogan, 2018). Thus, indie developers are seen as the ones who can experiment with new gaming ideas, pushing the limits of what games can be (Styhre & Remneland-Wikhamn, 2021).

The video games industry landscape in terms of the value chain is vastly changing. Together with it change the roles that game creators need to take on. It is worth exploring the expectations that companies have for their current and new employees. Existing quantitative studies regarding specific skills show a profile in terms of mostly technical skills (McGill, 2009; Tunnel & Norbistrath, 2022). Complementary qualitative studies could explore more specific natures and expectations of the industry. Such aspects that the companies themselves

would bring up and consider important.

In this paper, we present a complementary qualitative study conducted on Estonian video game development or closely related companies through multi-part interviews. This research gives further insight into the important peculiarities of different individual companies, how they operate, and what unforeseen properties they consider important in their employee candidates.

## 2. Background

Previously, Hewner and Guzdial have conducted interviews followed by a survey regarding the question of video game development company culture and expectations for new hires (Hewner & Guzdial, 2010). That research was conducted in a single company. Among their findings was a high expectation for C++ programming proficiency, corresponding to results from another survey by McGill (McGill, 2009). Hewner and Guzdial also found that while other languages were used at that company, C++ was the only one explicitly mentioned.

Both surveys were performed over a decade ago, and the modern industry has somewhat different needs regarding specific technical tools like the C++ programming language (Tunnel & Norbistrath, 2022). However, Hewner & Guzdial also found high expectations for skills regarding algorithms and data structures and the general skill of problem-solving. In that survey, they refer to problem-solving as being ambiguous. However, in other research, it is also found to be a highly valued ability in video game development (McGill, 2009; Tunnel & Norbistrath, 2022).

What Hewner and Guzdial found to be even more or equally important were people skills. Highly valued abilities included the ability to work with others and, especially, others from different departments in the organization. The employees were expected to be able to communicate with both technical and non-technical audiences (Hewner & Guzdial, 2010).

Another interesting result was that employees had to have enthusiasm for building video games. Related to that was the willingness to put in extra hours to complete a feature on time, which was also considered highly important. The authors found that in this company, people worked long hours and even on weekends during *crunch time* (Hewner & Guzdial, 2010). This term is used in video game companies for overtime and often unpaid work for limited periods of time to meet project deadlines. However, it has been shown that longer than 40-hour weeks result in productivity loss, and generally, crunch time is not well looked upon in the industry (IGDA, 2005). Since the time of that survey, the percentage of full-time employees working 40–44 hours per week has risen from 50% in 2015 to 54% in 2019, and the percentage of employees working more than 44 hours per week has subsequently decreased (Labeledzki, 2022).

### 2.1 Using Personas

Personas are a generalization of a certain group or demographic that may need to perform a specific task with a product. Personas should be based on field research, and they should help identify generalized roles or types of customers a company needs to serve. There are also proto-personas, which are made without field research (Tomlin, 2018).

Personas have, for example, been used to create a representation of students a degree program wants to attract (Munson & Tunstall, 2006) or map out the foreign students in a curriculum to facilitate better their integration into the workforce (Eugene, 2021). In another case, they were used to understand the different needs of employees for enterprise training (Lou et al., 2018). The authors of that research explained that their created personas not only show what their employees need to get trained in but also what training the employees *want*.

The aforementioned research explored the effect of generalized roles by using personas. In our study, we decided to use personas based on our graduated computer science Bachelor students to get a more specific representation of a possible video game company employee candidate. Personas would more easily allow the companies to imagine a case where they need to hire someone with certain requirements and thus can provide more immediate reaction and insight into the company's expectations.

## 3. Method

Our interviews with the Estonian video game companies consisted of three roughly equal parts. In the first part, we asked in a semi-structured format several questions about the company. For example, about its employees and their desired traits. The purpose was to get insight into how the different companies operate and what they expect from their employees or employee candidates. The questions were as follows:

1) *What is special about your company and the people who work there?*

- 2) *What is your usual process for hiring employees?*
- 3) *Who would be the ideal person to work in your company?*
- 4) *What traits are important in your employees?*
- 5) *What roles do you separate in your company?*
- 6) *Is it expected, or how much should a game designer know about programming, and programmers know about game design?*
- 7) *What do you think the university should focus on when teaching students?*

The questions were asked in the order that made the most sense during the conversation. We always started with the first question about the company and its employees and then followed up according to how the conversation developed. We phrased or led into the questions depending on what was previously discussed.

For the second part, the companies were asked to imagine a case where they needed to hire a new employee. To make the situation more tangible, we used the previously created three personas (section 3.1 explains their creation process) which represented the hypothetical employee candidates we called *applicants*. The companies were then given time to go through each applicant (persona), think out loud, and tell if and why they would continue their employment process with each one or not. The purpose was not to learn about the personas themselves but rather to see what each company thought essential to comment about or base their choice on. We asked only a few, if any, specific questions in that part of the interview.

The third part of the interview consisted of a discussion regarding the company's involvement in our video game designer-developer curriculum. That part is outside of the focus of this paper.

### 3.1 The Personas

To create the personas used in the second part of the interviews, we first surveyed our graduated computer science Bachelor's students who had done their thesis in video games, computer graphics, or virtual reality and used our custom digital learning environment. In that survey, we asked our graduates to list their favorite courses, least favorite courses, their motivation in making video games, the tools they used to make video games, their thought process when faced with new challenges, their thoughts about teamwork, and expectations for an ideal video game development company they would love to work at. In the end, there was an option to upload a picture of themselves if they wanted their picture to be used in research. The participants were informed that upon participation, their textual answers would be anonymously used to create personas for further research. This questionnaire was sent to the students via email, and 23 students filled out the questionnaire.

#### 3.1.1 Clustering

As the questionnaire participants had used our custom learning environment, we had data regarding their 9 ECTS (1 ECTS = 26 hours of work) Bachelor thesis work progress. That data came in the form of reported work hours every week until the completion of the thesis. At our university, we cannot expect the student to do more work timewise than the credits allow. Plotting the weekly data together with this limit results in a burnup chart – an upside-down version of a burndown chart (Dinwiddie, 2009). We regularly use such thesis work graphs in our supervision work to give students and supervisors feedback about how well the time expectation is matched.

We used hierarchical clustering with Ward's clustering method and the Euclidean distance function to classify the work progress data into three clusters. There are likely more underlying patterns in such data, but because of the small sample size of 27 theses and our choice of using three personas for the interview, we chose three clusters.

These work graphs indicate three different behaviors (see Figure 1). Cluster A has the most linear gradient of the three up until the submission of the written thesis. This indicates steady progress throughout the allocated time and that the 9 ECTS expectation is met gradually. Cluster B has a similar gradient through most of the work progress but goes over the time limit when the deadline comes closer. Their final spent time is roughly 40% more than what is expected. Cluster C has the steepest gradient. This indicates that the work started quite late, and a lot of it was done quickly. The steepest changes show a workload of about 35 hours per week. It is important to note that these different behaviors have no value assessment (e.g., thesis grade) attached to them.

#### 3.1.2 The Persona Sheet

The found clusters were used to group all the previously surveyed information. The aim was to make the personas on par with each other but still include the individual differences members of each cluster had.

Each persona sheet consisted of three visual sections (see Figure 2). On the top, we used a fake name, picked an

uploaded photo from each cluster, and used the word *applicant*. Next came the three favorite and least favorite courses. Then we had the thesis burnup chart and an example project. The third part consisted of textual descriptions of soft skills, motivation, and an ideal company to work at. Each of these had corresponding questions in the questionnaire.

The favorite and least favorite courses were the ones with the most mentions in the questionnaire. In the middle section, we added the cluster's thesis work graph. We then picked a video game project from a member of that cluster. These projects may or may not have been actual thesis works but had to have been made during their studies (e.g., as course projects). With longer texts in the third section, we mixed the written sentences from different participants in a cohesive way.

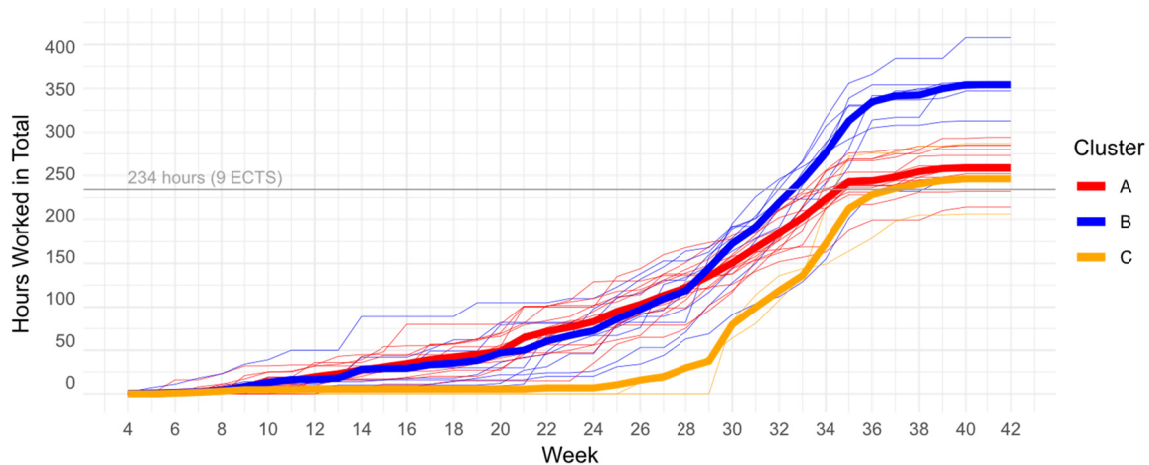


Figure 1. The three clusters of thesis work charts. The graph starts from week 4 in October when students must choose their thesis topic. On weeks 35 or 36, they submit their written thesis, and the defenses are on weeks 40, 41, and 42.




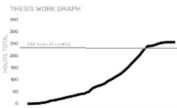
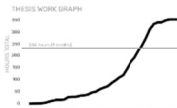




 <p><b>APPLICANT</b> Tom Kask</p>	 <p><b>APPLICANT</b> Robert Saar</p>	 <p><b>APPLICANT</b> Risto Tamm</p>
<p><b>FAVORITE COURSES</b></p> <ul style="list-style-type: none"> <li>Computer Graphics</li> <li>Computer Game Development and Design</li> <li>Object-Oriented Programming</li> </ul>	<p><b>LEAST FAVORITE COURSES</b></p> <ul style="list-style-type: none"> <li>Probability Theory and Statistics</li> <li>Principles of Entrepreneurship</li> <li>Databases</li> </ul>	<p><b>FAVORITE COURSES</b></p> <ul style="list-style-type: none"> <li>Computer Game Development and Design</li> <li>Computer Graphics Project</li> <li>Artificial Intelligence</li> </ul>
<p><b>SKILLED IN</b></p> <p>Unity, Unreal Engine, Blender, Audacity, GIMP, Paint.NET, Vulkan.</p>	<p><b>SKILLED IN</b></p> <p>Unity, Blender, GIMP, Visual Studio.</p>	<p><b>SKILLED IN</b></p> <p>Unity, Unreal Engine, Blender, IntelliJ, JetBrains Rider, Adobe Photoshop, JavaScript, Babylon.js, Three.js.</p>
<p><b>THESES WORK GRAPH</b></p> 	<p><b>THESES WORK GRAPH</b></p> 	<p><b>THESES WORK GRAPH</b></p> 
<p><b>LATEST GAME / THESIS PROJECT</b></p> <p><b>Houseplant Care Simulator</b> - It is a game about managing stress by buying and caring for houseplants. I wanted to promote houseplants as a stress-relief method and provide educational value.</p> 	<p><b>LATEST GAME / THESIS PROJECT</b></p> <p><b>SpaceshipVR</b> - It is a VR game about exploring alien words in a spaceship. There is no challenge, competitiveness, conflict or stress in the game. I have worked on it for many years now.</p> 	<p><b>LATEST GAME / THESIS PROJECT</b></p> <p><b>WorldReacer</b> - I made a racing game in a procedurally generated city. The city generation algorithm is also my own. In the game you need to get to checkpoints in time and can do burnouts.</p> 
<p><b>MOTIVATIONS</b></p> <p>To me it is a creative outlet. It just feels great to make something out of nothing. I love seeing how other people can be affected something I've made. I can do whatever I want and it is only limited by my imagination and my technical skills.</p>	<p><b>MOTIVATIONS</b></p> <p>I want to create worlds and experiences that do not exist in the physical world. I consider myself an artist and I believe that video games are the highest form of art. It's really fun to take an idea and make it into reality. In video games absolutely anything is possible.</p>	<p><b>MOTIVATIONS</b></p> <p>I like to make games for the same reason that I like playing them. Games can feel like different worlds, good escapes, new experiences and challenges. Excellent for learning. I want to create the fun experiences for other people that I have had when playing good video games.</p>
<p><b>SOFT SKILLS</b></p> <p>When faced with a new challenge I break it down into manageable chunks, so I can start iterating and seeing progress quickly. I will then map out the most logical path to overcome it. Teamwork (absolutely) necessary in bigger projects. Otherwise you have to reduce the scope or quality/fidelity of the project in order to finish it in a reasonable amount of time.</p>	<p><b>SOFT SKILLS</b></p> <p>When faced with a challenge, I first analyze the challenge and how much value completing it might bring. If it's worth it, I will start with the first most basic piece of the solution and push through step-by-step from there until I reach the whole solution. Teamwork is the most important thing. Without it we would not be able to create anything big.</p>	<p><b>SOFT SKILLS</b></p> <p>When faced with a challenge, I usually start with googling and try to learn about the topic. If I don't give up immediately, it will help to divide a big problem into smaller, more solvable ones. This can take a long time, but then the solutions become clear. Teamwork is very efficient and it is good to have many different minds figuring out a problem.</p>
<p><b>IDEAL COMPANY</b></p> <p>Developers in game developer companies are often underpaid and/or overworked, which is not something I would want to experience. The developed video game has to be something that I would actually play and enjoy myself.</p>	<p><b>IDEAL COMPANY</b></p> <p>The company that supports its worker fully and let's the worker be also flexible in their work. One whose projects align with my interests. One that has an open and respectful culture and atmosphere, where workers are fairly compensated and the work/life balance is decent.</p>	<p><b>IDEAL COMPANY</b></p> <p>A company that has unlimited time and money to for development and experimentation. One that works on developing interesting and novel big budget video games. A company that is working on a game I love to play and is already released (to avoid deadlines and stress).</p>

Figure 2. The three made-up personas

#### 4. Results

We contacted 17 companies that had, in our previous survey (Tunnel & Norbistrath, 2022) indicated that they would be interested in an interview. These companies were contacted via email and asked to choose a suitable time for the interview via a Doodle poll. Two reminder emails were sent in case the previous emails received no

response. The interviews took place from the 13th to the 26th of October. In total, 11 companies out of the 17 accepted our invitation for an interview.

All the interviews were conducted through the Discord instant messaging platform in the form of a call. These calls were usually video calls. With some interviewees, who did not have video capability, only audio was used during the call. The calls were recorded, and the recordings were transcribed by an online transcription service (Alumãe et al., 2018) for further analysis. All participants were informed of this, and they agreed that the information they shared during the call could be used in research.

The companies who answered varied in their size. Some had only a single employee, while another had over 40 employees. Usually, the companies had about 4–12 employees, which often included project-based temporary hires in addition to full-time employees.

#### 4.1 Company Characteristics

Most commonly, the companies mentioned that their area of work or the technology they use is what makes them special. These included virtual reality, mobile platforms, educational games, Web 3.0, and blockchain. Some companies said that they often use different technologies for different projects. For example, one company said:

I think that one strong point of my company is that we are very eclectic. Like we do a lot of different things, from movies to games. And when we are doing things, they are very different from each other. We like to experiment a lot. (...) The first game [redacted] was science fiction, [and] then [redacted] is fantasy and humoristic. And now [redacted] is again something different, again science fiction, but in voxel art. (...) For someone working in the company, it is fun if they can diversify and not keep doing the same things again and again.

Remote work was another popular aspect some companies thought was special. Several companies explicitly mentioned that they are fully remote companies. One such company emphasized that they have a certain strict work ethic their employees are expected to follow.

Companies brought out that freedom and creativity are among their core values. One company said they are all about making bold creative choices and celebrating creative freedom. Another mentioned that creativity directly comes from freedom.

Several companies said that they care about their employees and people in general. They are accepting of individuality, and everyone in their company can (re)specialize in anything they want. One such company also stated that most of their employees are from different nationalities and have LGBT backgrounds:

(...) the most important thing is that we are very accepting. Actually, most of our team consists of LGBTQ people. It somehow has just happened that way. This is one peculiarity we have. One of the most wonderful things when it comes to our team.

One more important peculiarity some companies mentioned was their highly specialized expertise. They brought out renowned local science fiction writers that work with them and said they want to be best at specific aspects like virtual reality, immersion, or even international markets. One of the valued points was the ability to learn from these highly skilled people and work on higher-than-average complexity projects.

#### 4.2 Hiring Practices

Different hiring methods and practices were mentioned. Some had a long process that included screening, interviews, recommendations, and finally, an interview with the CEO. In such a process, different people in the company were involved in different steps. Most companies wanted to see previous works and had some form of a hiring interview. At times the process ended with a trial period (one company called it a *tutorial* period in the spirit of video games).

Several companies explicitly mentioned that recommendations by the people they trust are important. That it is not just necessary to have any recommendation, but the person who is recommending should be either known or trusted by the company already. The company needed to be certain that the recommendation is credible. This word-of-mouth approach was, for several companies, the very first step of the hiring process or the even main way they find new employees.

Three companies had unique approaches. One exclusively hires through their internship program. They have a lot of interns, and when an intern shows promise and is a good fit with the team, they give them a job offer. Another company specified that they start with a questionnaire about the candidate's personal interests. They ask for their favorite movie, what they did the last time they had free time, etc. The purpose of such questioning is to

understand how open that candidate is about themselves. The third interesting approach was that there was no screening process at all. The company said that anyone could come and help them out if they have the competence and a supportive attitude to do so.

#### 4.3 Ideal Traits

Every company listed some soft skills as valued traits in their collective. Usually, skills like problem-solving and learning new things were commonly valued. However, many companies also had quite high ideals regarding soft skills. One mentioned that an ideal employee needs to have values, principles, transparency, ownership, autonomy, a sense of mission, and ambition. They explicitly said that they do not need someone who just trades their time for money. This statement was also given by another company that elaborated that they are looking for people with a vision, who think beyond the task at hand, and who contribute, not just work. A third company specifically enquires about this initiative during their hiring questionnaire:

One of our questions is about a bad boss, who gives you a task. And that task is not good for any kind of reason. Do you accept that task or not?

This emphasizes that employees are usually expected to have a lot of independent thought. Several companies said that all their employees could question everything in their company.

One company said that the ideal employee must feel like part of a family and accepting of others. Open-mindedness and emotional collaboration skills were mentioned too. Another company's CEO said they need to have a good feeling and chemistry with the person.

The ideal employees must also be assertive and voice how the company needs to meet their own personal needs. Another company elaborated that they are looking for people with initiative. If something is wrong, the employee must take the initiative and bring the issue up with their colleagues.

Competence was mentioned but not as prevalently as soft skills. One CTO said they want the ideal employee to be more competent in some specific area than themselves. The more varied such competencies are in the employee, the better. Another company mentioned that it is important to have a strong intellectual foundation in the field that allows one to learn new specific tools easily.

#### 4.4 Roles and Overlap

The common roles companies brought out were the game designer, game developer (technical, art), game programmer, artist (different kinds), content designer, user experience (UX) specialist, sound designer, musician, people manager, project lead, QA/tester, marketer, community manager, localization lead, etc. One company said that they renamed their *game designer* position to *product manager* to emphasize that the game designer should not just work in isolation on a single small thing, but rather they need to manage and have the overall picture always in sight.

Many companies said that employees could easily change their role in their company when they find a new calling. One company elaborated that they want people to work on the parts of the game that they feel most passionate about. This helps the employees become specialists in a specific area, and they tend to contribute more. Another company said they love to have specialized people, but there always must be a shared vision.

The most common opinion was that every employee should know at least a little bit about the roles of other employees. However, the actual breadth of the skills and knowledge required varied quite a lot. One company said that everyone needs to be able to use game engines and know how to prototype their ideas with them. Another said that they do not expect an artist to be capable of importing and using their created assets in a game engine. This company elaborated that they have specialized people who will do such things.

In most companies, programmers were expected to know about design. One company explicitly stated:

*A programmer who does not know about UX is a bad programmer.*

Most other companies expressed similar expectations. For example, programmers need to know a bit about art. If something needs changing in Photoshop, the programmer is expected to make this change and not bother the artist with it. Often it was expressed that the more a person knows, the better. Even if it is just on the contextual fluency level.

However, two of the companies did not have such expectations for their employees. They said that some programmers just want to code their parts of the software and not have to worry about the users. One of these companies explicitly mentioned that they have such a person employed, and it is working out well for them.

Regarding the game designer role, some companies did express that they need the game designer to be able to

prototype their idea in a game engine or even to program some simple code there. However, most other companies said that the game designer does not have to know how to program. That they should rather see the overall picture and design the game mechanics on paper or by other means. One company elaborated that their designer does clickable mockups of their ideas. While the general stance was that the game designer does not have to program, many companies mentioned that if they could, it would make them more valuable employees.

#### 4.5 University Studies

The answers to the question about what universities should focus on when teaching students varied greatly. Some companies mentioned soft skills like communication and teamwork but elaborated that it is not only important to teach these skills but also to make sure the students understand why these are necessary. It can be especially necessary for Estonians, as they can be considered *insensitive* and *introverted* (Mizera et al., 2013). This may imply systemic shortcomings in their communication skills, perhaps caused by cultural peculiarities.

Regarding problem-solving, one company said:

Basically, in the software field, you have a million problems. You can teach programs and fundamental skills, and these are very important. These are the default that should be taught – specific skills. But the key thing is that when problems arise, then how to solve them. How does the thought process go? And that it is not some drama when a problem happens. Because one problem is always chasing the next, you fix something, and another place breaks. The person who is ready to handle the problems is the one. (...) VR is such a new field, there are no ready solutions, [and] you have to come up with them. That courage [is desired]. That it is okay to do things differently than someone else has done.

One company mentioned that they expect graduates to create development solutions fast. In the world of start-ups, implementing a feature *fast* is paramount for the company.

Some companies mentioned specific areas. For example, the students should know the business part of game development. In that company's experience, most people who start working on games waste a lot of time before they understand one of the most important aspects of games, which is that they are ultimately meant to bring value to people. Another company mentioned that having at least basic web development skills usually comes handy. It was also said that not only competence with a tool is needed, but also a general understanding of how that tool works. So that when a new tool comes along, it would be easier to understand and learn.

One company said that during their university studies, the students should work on existing real-world projects with a large code base. This prepares them for working with an existing code base when they get employed. Another company wanted students with real-world experience in building and releasing an actual commercial video game. They gave an example that if someone learns to be a potter, it does not make sense that they just throw away all the pots they made during their studies. Rather, they should sell them. One more company said that if there is a university curriculum about video game development and design, then the contents should be about developing and designing specifically video games, not just general software. This is not always obvious for curriculum designers.

#### 4.6 The Personas

There were some common themes regarding our created personas and the hypothetical case of picking an applicant(s) to proceed with the hiring process. First, several companies said that they would want to be able to play the featured game or at least see a video of it. Some explained that the best thing would be a portfolio that shows multiple projects made by the applicant. Secondly, several companies said that the skills should be meaningfully quantified. They saw that the person has worked with Unity, but they would also need to know how many years they have worked with it. One company even said that because the skills are not quantified, they would not call any of these applicants to a hiring interview.

When it came to favorite and least favorite courses, the opinions varied. Some found these to be quite useful for knowing a person's interests and thus beneficial in distributing work tasks between employees. One company said that only the least favorite courses were interesting, and he would like to ask more about those.

One company said they looked mostly at the visuals of the project to assess if the visual style matched what they were doing. They said that other info, like motivation, would take them much longer to assess. Another company also said that they did not look at the motivation at all because no one will write there that they hate people. However, one company also said that they look keenly at motivation to find out how an employee can be further motivated besides remuneration.

The thesis graph was also ignored by some companies but paid attention to by others. Those who ignored it

sometimes said that they either did not understand such a graph or that seeing such a graph for a single project was insufficient. This one project could have coincided with whatever they had going on in their life at the time and thus is not generalizable, i.e., there should be more data for that to be useful. Other companies, however, did pay attention to it. At times, it paid a role together with some other piece of information on the persona sheet. One company suggested that perhaps more information, like a thesis grade with such a graph, would help.

Most companies preferred either the first or second applicant. The first applicant, Tom, was said to have the right favorite courses, covering the areas that the company needs. Some companies also noted that Tom had the most linear work graph, so they should be a stable employee and will not just do all the work at the end of the project. However, one company said that as Tom wants to make games, which they themselves would play – this can show a lack of experience in the industry.

One company said that the second guy, Robert, is good because they value gaming and do not seem entitled. They also said he has a friendly face. Robert was also preferred if the company was working with VR, as their featured project was in VR.

Some companies found Risto to be the least suitable for them. The thesis work graph was worrisome for several such companies. One company elaborated that a big red flag for them is the poor performance visible from the thesis work graph together with the textual information that when faced with problems, this applicant might tend to “give up”. Employees should not give up on a problem if their job is to solve it. Another company found that Risto could be a good playtester for them, as his reaction might indicate when a game gets too frustrating.

Several companies specified that they would ask them all for hiring interviews. Or, at least, ask for more samples of their work before excluding anyone. The reason was that just one written page, and a static image of a single project provided insufficient information to make an exclusive choice.

## 5. Discussion and Conclusion

All the comments from the companies regarding that a programmer should know user experience design, students in the university should develop and publish actual games, and that games are ultimately supposed to bring value to the people, refer back to the concept of having the player and their experience as part of the whole (Styhre & Remneland-Wikhamn, 2021). All companies, except two, stated or implied that programmers must be aware of the game and its design. This is a strong indicator that teaching just computer science or software development will not be sufficient for game development – a finding also present in other research (Bayliss & Bierre, 2008; Kasurinen et al., 2013). This tendency to value employees who understand the different aspects of the product is also prevalent in other software development areas (Jiménez-Gómez & Mañas-Viniegra, 2020).

As video games are very interdisciplinary products, the people making them need to be able to communicate well with each other. Every company mentioned communication and teamwork in some form or another to be important skills to have. This importance is found in other research as well (Hewner & Guzdial, 2010). Therefore, teaching such skills is something that higher education institutions should pay close attention to in their programs. It is especially important that it is not just any communication or teamwork but an interdisciplinary one. One company even renamed their game designer position to product manager to emphasize that point.

Several companies indicated that the employee needs to be *a good fit* in the company. One even mentioned that the ideal employee should feel like they are part of a family. This sense of belonging is also one of the most common motivators in software engineering jobs for an employee (Labeledzki, 2022). Furthermore, the company also mentioned that every employee should be clear about their personal requirements for the company. The concept of valuing people for who they are is called autonomous respect and, together with respectful engagement, is one of the key contributors to occupational resilience, job satisfaction, employee loyalty, and job engagement (LaGree et al., 2021).

Video game development can, at times, lead to undesired crunch time (IGDA, 2005), which in the modern industry is still prevalent – indicated by one of the companies saying that if a candidate is expecting a work environment without crunch time, they might be inexperienced with the industry. Unpaid crunch time is something we feel should not exist in any contemporary industry, no matter how high the competition.

Overall, the video game industry in Estonia has some strong commonalities between the companies. Notably, the work ethic of taking ownership of one’s work, sharing the company vision, and being aware of the game, player, and player experience design. However, there are also quite varied requirements between the different companies. This study has described these peculiarities. Some of those could be specific to the Estonian culture. For example, the need for extra emphasis on communication and teamwork skills. Still, we believe that many of



these company cultures and employee requirements can occur globally too. As such, these results are valuable for higher education video game curriculum designers, scholars of the video game sector, and even employees and companies trying to understand the job market better.

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