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| Leon Moelker |
| [Growth Portfolio] |
| V2.3 |

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| Leon Moelker  3-22-2025 |

Growth Portfolio

v2.3

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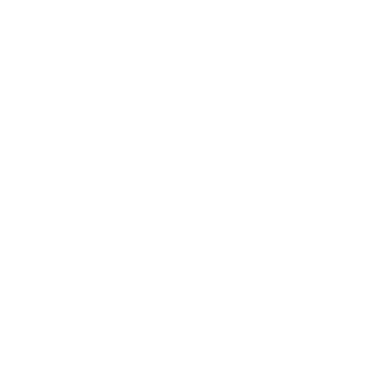
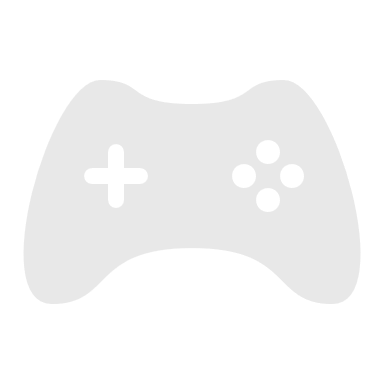
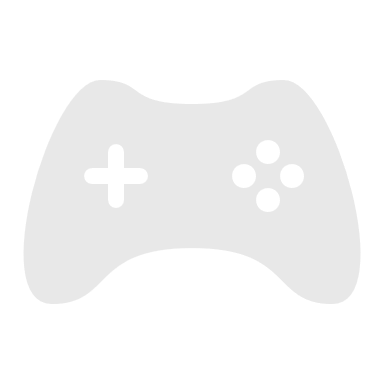
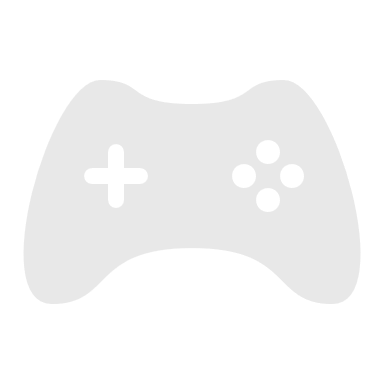
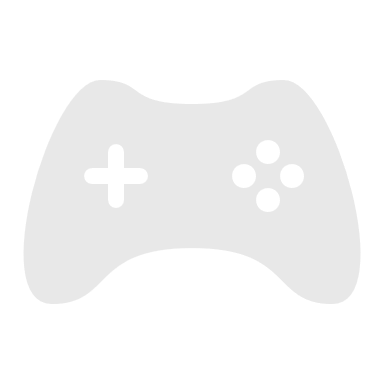
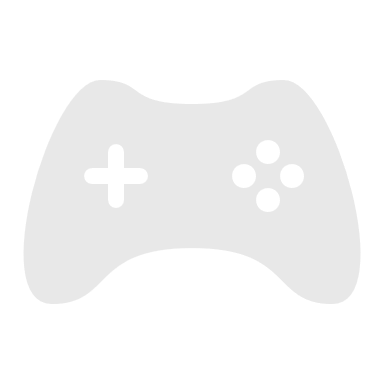
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# Curriculum Vitae



# Artist Statement

I have a big passion for history, an unpopular subject among children. With my designs, I hope to spark an interest in people to what has been. By creating my games, I want to immerse people in yesterday and teach them in a fun and interactive way. With this, I hope to destroy the stereotype of a boring history teacher.

# Introduction

## Mission Statement

## Previous Feedback

# Competency Matrix

Total Requested Credits: 18 ECs

# Competencies

## Research

### Previous Feedback

#### Stephan Caffa

* Find focus in your research, not all subjects are relevant to your design.
* Write context for each section and explain why we read about this.
* Name your sources and use the APA method to document them.

#### Stacey Sanders

* **Period 1**: You used a survey and a stakeholder analysis. Your research tended to start with broad, general topics not closely connected to the specific context (e.g., CBS data, Paris Agreement).
* **Period 2**: There was clear improvement. You connected CBS energy consumption data to your game and conducted a test session with 3 participants. You provided strong recommendations for improving your game based on the test session.
* **Suggestions for Improvement**:
  + Use a more inductive, context-focused research approach (e.g., interviews or more target group test sessions).
  + Make your research documentation more complete: introduce the project, clarify your research objectives and methods (including number of participants), present results, conclusions, and how they inform the next iteration of your design/prototype.
* **Positive Note**: Your documentation in period 2 improved, leading to 6 out of 12 ECs. Your game test session documentation was closer to the desired quality.
* **Feedforward**: The research from your first year was included to show growth, but it was hard for the reader to connect it to your current work. Ensure you consistently connect research findings to design iterations, as you did for the game test session.

### Learning Outcomes

*“You investigate a given semi-defined problem using a self-selected research method and selfselected theories. The goal is to clarify the problem and to search for a solution direction taking into account different and sometimes conflicting needs and interests. You involve different stakeholders to test the extent to which the solution works and fits the different needs and interests.”*

Source: NHL Stenden University of Applied Sciences (Red.). (z.d.). CMD\_LWD\_the\_Manual\_EN\_2324\_ SPREAD DRUK. CMD Leeuwarden.

#### Rewritten Outcome

*“I am investigating how players experience my game and how users interact with the website I created for a client in Maastricht. I conducted test sessions as a research method, using feedback from participants to clarify any problems and search for potential solutions. The goal is to ensure the game and website align with the various needs and interests of the stakeholders, including the client in Maastricht and the target audience for the game. The test sessions involve different stakeholders to assess whether the solutions fit their needs and how well they work in practice.”*

### Learning Goals

#### During this period, I want to learn the difference between scientific- and design research by attending lectures and reading ‘Just Enough Research’.

##### Knowledge

###### Starting Point:

Throughout my CMD career, I’ve received feedback that my research lacked relevance to the project. Initially, I didn’t understand this criticism, as my previous studies hadn’t raised issues with my research. Recently, I learned that this was due to the difference between scientific research and design research. I had no experience with design research before this period, so I decided to focus on learning about it.

###### Current Knowledge:

After attending Tjerk’s lecture and Mark and Thomas’ session, I have learned that design research focuses more on engaging with the target audience rather than just gathering data. Instead of simply collecting information, methods like interviewing and observing help to understand the audience's needs on a deeper level. This approach differs from the scientific research I was used to, which tends to prioritize objective data collection.

I’ve also started reading “Just Enough Research” by Erika Hall, which emphasizes the practical nature of design research and how it serves a project’s design needs more directly.

###### Sources used:

* 'Just Enough Research' Lecture by Tjerk
* 'Everything Can Be Tested, Change My Mind' Lecture by Marc and Thomas
* 'Just Enough Research' book by Erika Hall
* ScienceDirect article on the difference between science and design

##### Skills

###### Demonstrating Skills:

This project presented challenges in demonstrating my research skills since there was no specific target audience for the escape room. The game needed to appeal to a broad audience, making traditional audience-focused research less relevant. Additionally, my mini-game did not require extensive research, which made showcasing my newly acquired skills in design research difficult.

Despite these challenges, I applied my learning to the test sessions I conducted, focusing on asking the right questions to improve the design based on feedback. The difference between scientific and design research became clearer through this process. For example, instead of collecting hard data about the game's mechanics, I engaged users in a conversation to better understand their preferences, leading me to an Old Western theme for the mini-game.

I also reflected on a quote I found during my research:

Science studies the world to create new knowledge, design uses knowledge to create a new world.

– ScienceDirect.com

This insight made me realize that research in design must be applied toward creating solutions rather than merely gaining knowledge. Although I read "Just Enough Research" after completing my game, it provided valuable perspectives on how to frame future research within design processes.

##### Attitude

###### Reflection on Approach:

My approach to this competency was to remain open to feedback and explore new research methods, particularly those used in design. I initially struggled to change my mindset from scientific research, where I relied on data collection, to design research, which required a more human-centred approach.

The change of theme from *Zelda* to Blockbuster was an adjustment, but I embraced the challenge. By consulting peers and people in my environment, I learned to trust feedback in shaping my design decisions.

Overall, the process of learning about design research was beneficial, although it was not easy.

###### Successes

* Successfully applied feedback to create a game theme that resonated with my audience.
* Kept an open mindset to new research methods.

###### Challenges

* Difficulty demonstrating the new research skills in a project that did not require much research.
* Found it challenging to fully grasp the difference between scientific and design research early on.

##### Transfer

###### Lessons for next time:

* Design research is an essential part of the creative process, and I will continue to develop skills in engaging directly with users to gather insights that guide the design. In future projects, I plan to involve the audience earlier and more extensively.
* I’ve learned the importance of flexibility in design research and how different methods must be tailored to the project’s needs. For example, for a project requiring more detailed audience insights, I will incorporate interviewing, user testing, and observations more often.
* I will also continue reading design research books and apply these insights early in the ideation phase of projects.

##### Discussed Learning Outcomes:

Understanding and applying research methods

Using research to inform design decisions

Demonstrating research application through work produced

Receiving and implementing feedback

Flexibility in research methods

Reflecting on and refining research methodologies

Planning to use research insights in future projects

Collaborating with stakeholders in research processes

#### During this period, I want to learn how to professionally test by attending lectures.

##### Knowledge

###### Starting Point:

At the beginning of this period, I had some general experience with testing, mainly focusing on getting feedback from users on gameplay mechanics, but it was often informal and unstructured. I wanted to dive deeper into the professional testing process and learn how to properly conduct tests that yield actionable insights, both for user experience and game design. I had limited knowledge of testing strategies and no experience with using structured testing methods.

###### Current Knowledge:

By attending testing-related lectures and workshops, I have gained an understanding of the key aspects of professional testing. These include setting clear objectives for each test, defining metrics for success, ensuring the user knows how to interact with the game, and using structured feedback forms. Additionally, I learned the importance of keeping tests focused on specific elements of the game (e.g., controls, difficulty, mechanics) and how to interpret feedback effectively.

I also learned to focus on usability and user experience when testing, ensuring that I’m not only looking for technical bugs but also observing how the player interacts with the interface and game mechanics. For instance, the timing of actions and clarity of instructions were common issues that could make or break the user experience.

###### Sources used:

* 'Just Enough Research' Lecture by Tjerk
* 'Everything Can Be Tested, Change My Mind' Lecture by Marc and Thomas
* Feedback Form by Stephan

##### Skills

###### Demonstrating Skills:

In the testing session, I applied what I learned by setting up clear test objectives: testing the game controls, timing, difficulty, and how intuitive the standoff mechanic was. I created a feedback form with specific questions, which helped focus the feedback on the most critical aspects of the game. The feedback I received from testers, reflected a combination of subjective user experience and actionable insights, like the amount of time it takes for the enemy to shoot that I needed to change to not use the length of the music for shooting, but rather have a random time generated for the standoff duration.

The session allowed me to gather useful data about player experiences. One example was the feedback on the experience. The game was too silent when there wasn’t anything happening. This information was vital, as I hadn't focused enough on control fluidity. Furthermore, the tester mentioned that the colour change in the standoff mechanic was somewhat helpful but still required too much focus, so I needed to refine that part of the game.

###### Skills Demonstrated:

* Collecting structured feedback using forms
* Observing user interactions with specific mechanics (e.g., controls, timing)
* Refining game mechanics based on user feedback (e.g., standoff mechanic colour transition)
* Understanding when and how to add elements like background music or visual cues to improve the user experience

##### Attitude

###### Reflection on Approach:

I approached this learning goal with an open mind, ready to accept both positive and critical feedback from testers. I wanted to ensure that my testing process was structured and professional, and I made sure to observe the players closely during the sessions. It was a bit of a challenge to stay neutral and not give players hints during testing, but I learned that letting them struggle (to an extent) provided much more valuable feedback.

While I initially felt unsure about how structured feedback forms would affect the session flow, I quickly realized how much more useful they were compared to informal conversations. The detailed answers provided more actionable insights that could be directly applied to refining the game mechanics. I was also happy to see that I had successfully created an environment where testers felt comfortable being honest and providing constructive criticism. I did find it hard to structurally note their feedback if they gave it without a question answered. I did not expect this and wasn’t prepared. I’m afraid some feedback was therefore lost.

###### Successes:

* Created a detailed feedback form that provided actionable insights.
* Remained neutral during the test sessions, allowing players to experience the game fully.
* Collected useful feedback on both controls and gameplay mechanics, but also the theme.

###### Challenges:

* Finding the balance between letting players struggle and intervening when necessary.
* Keeping the test focused on specific objectives without veering into unrelated issues.

##### Transfer

Lessons for Next Time:  
From this testing session, I’ve learned the importance of setting clear objectives and sticking to them throughout the test. By using feedback forms and predefined questions, I was able to stay focused on specific issues and avoid getting lost in irrelevant discussions. For future projects, I plan to create even more detailed test scripts, ensuring that every test is structured and directly tied to improving specific elements of the game.

I also learned the value of observing how players interact with my game in real time. Their actions, like how long they spent learning the standoff mechanic or their reaction to the control stiffness, provided valuable insights that I couldn’t gather from written feedback alone. Going forward, I will place more emphasis on usability testing and incorporate background music or additional audio-visual cues to enhance the player experience.

For future tests, I will:

* Include more varied testers with different gaming experiences to ensure the game appeals to a broader audience.
* Use observation alongside feedback forms for a more holistic approach to testing.
* Create a space to write down additional feedback and observations in my feedback form.

##### Discussed Learning Outcomes:

Understanding and applying research methods

Using research to inform design decisions

Demonstrating research application through work produced

Receiving and implementing feedback

Flexibility in research methods

Reflecting on and refining research methodologies

Planning to use research insights in future projects

Collaborating with stakeholders in research processes

#### During this period, I want to choose the right style/subject for my game to make it fit the overlapping theme of the project by interviewing people in my surroundings.

##### Knowledge

###### Starting Point:

Choosing the right style has never been a problem for me. I usually feel what is right for the idea from the beginning. This time, I had a challenge ahead of me. My mini-game was designed to work with the *Zelda* theme I expected to work with. Instead, we would be working with a Blockbuster theme. For the first time, I found myself void of ideas. A strange feeling for me.

###### Current Knowledge:

I’ve learned to use the recognisability of a brand, in this case, Blockbuster, to obtain information about them through interviews. By asking what comes to mind when saying a brand name, I know what the passive perception of that brand is in the public eye. I can use this information to make informed decisions for my game's theme.

##### Skills

###### Demonstrating Skills:

I’ve surveyed by simply walking up to people and asking them the question I’ve been wondering myself: “What movie comes to mind when I say Blockbuster?”. Answers to this question differed. Some people remember Blockbuster as a video game rental store only, others thought it was a porn rental store (probably embedded in people's minds by Hollywood), but some actual movies came to mind as well. Die Hard, various RomComs, Mission Impossible and Western movies were some of the ideas I wrote down.

By using this information and looking at the concept of my mini-game, I realised the answer was right in front of me: “Mexican Standoff”. I could easily translate the core game mechanics I had in place for a *Minish Cap* version of Link from *Breath of the Wild* where Link reflects various guardians' lasers to a simple old western Mexican standoff. The Arcade style from the ‘80s with simple controls by just pressing SPACE twice, and the engraved memory of people knowing that Blockbuster also rented out video games together with the fact that movies at the time usually got their own video game as well; it just all fit too perfect. Combining these different core memories people have from the ’80s (even if they’re not from the '80s themselves) taught me to find a fitting theme within the overarching concept of the escape room.

##### Attitude

###### Reflection on Approach:

Looking back, I could have considered testing the style before implementing it into the game. I was dumb lucky that many people enjoyed the theme so much, and I got many compliments from an early point. I think that my general approach was not too bad. I used a human-centred approach just like I promised myself to do.

###### Successes

* Successfully engaged with the community to get useful information
* Successfully created a fitting theme that goes well with the overarching theme of a project.

###### Failures

* Forgot to test the theme before implementing.

##### Transfer

For future projects, I will:

* Ask for feedback about my theme before implementing it.
* Regularly use this method because it does not require much effort but it gives project-changing results.

##### Discussed Learning Outcomes:

Understanding and applying research methods

Using research to inform design decisions

Demonstrating research application through work produced

Receiving and implementing feedback

Flexibility in research methods

Reflecting on and refining research methodologies

Planning to use research insights in future projects

Collaborating with stakeholders in research processes

#### During this period, I want to gradually receive feedback on my work by gradually testing my product in my immediate surroundings.

##### Knowledge

###### Starting Point:

Showing my work to others is something I have always done out of pure pride, but asking for feedback and incorporating that into my design was something I have yet to do. Maybe I thought I was all-knowing and knew better than whoever I showed. During this period, I vowed to be less stubborn and ask for more feedback.

###### Current Knowledge:

I have learned to incorporate people's feedback throughout the development and to test gradually rather than after the product is completed. Thanks to Tjerk’s lecture, I have learned to develop my product in multiple working stages so I could test throughout development. This allowed me to iterate my design and improve upon it multiple times.

###### Sources Used:

* ‘Just Enough Research’ Lecture by Tjerk
* CMD Methods

##### Skills

###### Demonstrating Skills:

I iterated my design by incorporating feedback from people in my immediate surroundings and I worked by creating different stages of a working product so I could test at multiple moments.

I will explain the different stages:

1. The ‘*Concept*’ state,  
   Initial drawn concept, positive feedback by peers.
2. The ‘*Shapes*’ state,   
   A state where all the objects are simply rendered shaped that simulate the logic, allowed me to test the viability of the idea. Positive feedback from my parents and peers.
3. Added laser functionality,  
   After adding lasers, I was able to test how clear the shooting indicator was. My dad, who is colourblind, pointed out that the laser changing colours was not enough, if the laser would also increase in thickness it would be clearer. I also took the time to ease the lasers due to the feedback from Tjerk, which made me incorporate a new library into the project.
4. The ‘Sprite’ state,  
   This state took long to develop. While I won time by creating a prototype using simple shapes that I could test, I lost time rewriting the logic to be compatible with sprites. I ended up incorporating another library into my project called ‘p5.play’ that changed how the ‘p5’ library renderers objects and allowed me to use functions to split sprite sheets into frames and use that for animations. I made my own Link sprite with a *Breath of the Wild* style to test. Testing in this state was not any different to the user because the functionality looked no different while in the background much of the logic had changed. It is hard to say if I eventually won or lost time making a different prototype in the beginning.
5. The theme change,  
   I already explained how I chose the new theme for the game, but initially, I wanted to go for *Mission Impossible* as advice from Jop. But after testing that, I was told that it just did not fit the mini-game. After creating the cowboy sprites, I got very positive feedback from my peers and they immediately recognised that it was a cowboy. The theme also made sense because they connected the Blockbuster theme with the old Western movies. Completely changing the shapes to sprites increased the development time significantly again.
6. The ‘*~~Final~~*’ state,  
   This was the version I made just before the test session. After the test session, multiple things seemed to be missing but I will cover that in the next learning goal.
7. The ‘*Final*’ state

As you can see there were multiple moments where I could test my work and change something.

##### Attitude

###### Reflection on Approach:

While I’m not sure if I won time using this approach, it did help me to create structure in my work, it helped me effectively plan what I wanted to implement, and lastly, it made sure I took the time to polish and perfect my work by getting feedback.

###### Successes:

* Early testing improved clarity,   
  Testing with my dad, made me realize that only changing the laser’s colour wasn’t enough. Increasing the thickness made it much clearer. Without early feedback, I wouldn’t have caught this.
* Incremental development made feedback easier to implement,  
  Working in stages ensured I could change elements based on feedback rather than being stuck with a final product that was hard to modify.

###### Failures:

* Rewriting logic for sprites caused setbacks,   
  While early shape-based prototypes helped test mechanics, transitioning to sprites required rewriting large parts of the code. I underestimated how much work this would be.
* Hard to measure whether I saved or lost time,  
  While incremental development helped to test, the repeated rewrites (especially moving from placeholders to sprites) might have slowed me down in the long run.
* Testing impact wasn’t always clear,  
  Some changes, like implementing *p5.play*, weren’t noticeable to testers, even though they significantly altered the back-end logic.

##### Transfer

* Testing early saves mistakes later.
* Placeholder assets are useful but plan the transition to sprites well.

##### Discussed Learning Outcomes:

Understanding and applying research methods

Using research to inform design decisions

Demonstrating research application through work produced

Receiving and implementing feedback

Flexibility in research methods

Reflecting on and refining research methodologies

Planning to use research insights in future projects

Collaborating with stakeholders in research processes

#### During this period, I want to host a test session to check if my game communicates the right theme and has a balanced difficulty.

##### Knowledge

###### Starting Point:

Before this period, I had only organized a structured test session once. I relied on informal feedback from friends or family but rarely conducted a dedicated session to evaluate aspects like theme communication and game balance. My approach to testing was unstructured, meaning I often received feedback too late to make meaningful adjustments.

###### Current Knowledge:

I have now learned how to prepare, execute, and analyze a test session. This includes defining testing goals, preparing test cases, gathering feedback systematically, and translating that feedback into improvements. The test session provided valuable insights into whether the game’s theme was clearly communicated and whether the difficulty was well-balanced.

###### Sources Used:

* Tjerk’s lecture on user testing
* CMD Methods
* Feedback from testers
* Stephan’s Feedback Form

##### Skills

###### Demonstrating Skills:

I organized a test session where multiple participants played the game under structured conditions. Their feedback helped me identify key areas for improvement. Here are the different stages of the process:

**Preparation:**

* Defined testing goals: ‘*Does the game communicate the intended theme?’ ‘Is the difficulty well-balanced?’*
* Created a structured test plan with specific aspects of the game to test.

**Execution:**

* Observed players as they played the game, noting their reactions and struggles.
* Asked questions about theme perception and difficulty after gameplay.
* Encouraged testers to think aloud while playing to understand their thought processes.

**Findings & Iterations:**

Success: Most testers immediately recognized the intended theme, validating the visual and audio design choices.

Failure: Difficulty was too easy for some people while too hard for others. Waiting out the entire sound effect was too repetitive and too long.

Iteration: Made the shooting time of an enemy be a random point between 30% and 70% of the sound effect. Added an indicator underneath the player to communicate when to shoot.

**Post-Test Adjustments:**

* Changed enemy shooting logic
* Added a percentage bar underneath the player for extra clarity
* Conducted a smaller follow-up test

##### Attitude

###### Reflection on Approach:

Hosting this test session required me to step out of my comfort zone and actively seek critical feedback. Initially, I was worried that players wouldn’t understand the theme or would find the game too repetitive. However, I learned that structured testing is an essential part of the design process and that player feedback, even if critical, is necessary for improvement.

###### Successes:

* Organizing a structured test session provided clear, actionable feedback rather than vague impressions.
* Testers recognized the theme, proving the visuals and narrative were clear.
* Observing players' struggles highlighted balancing issues I hadn’t noticed myself.

###### Failures:

* Some testers gave conflicting feedback on difficulty, making it hard to decide on changes.
* I underestimated how much testing would influence the design, leading to more changes than expected.
* Due to the deadline and amount of feedback received, I sadly had to prioritize some changes. I hope to incorporate them in the future still.

##### Transfer

From this experience, I learned:

* Structured playtesting is essential,  
  It reveals issues I wouldn’t notice on my own.
* Balance is difficult to judge alone,  
  Observing different types of players is crucial.
* Themes should be validated early,  
  Luckily, mine worked, but this should be tested sooner in future projects.
* Testing requires multiple iterations,  
  One round of feedback is never enough.

##### Discussed Learning Outcomes:

Understanding and applying research methods

Using research to inform design decisions

Demonstrating research application through work produced

Receiving and implementing feedback

Flexibility in research methods

Reflecting on and refining research methodologies

Planning to use research insights in future projects

Collaborating with stakeholders in research processes

## Create

### Previous Feedback

#### Stephan Caffa

* **Cards:** It's recommended to create a class for cards and use subclasses for variations.
* **Data Management/JSON:** JSON is useful for storing data, similar to dictionaries. PlayerPrefs can store a few key values, but JSON may be preferred.
* **Managers:** Consider using managers in the game project, like a Save Load Manager or a World Generation Manager, to manage specific tasks.
* **Lerp and Vector3:** These concepts are not too complex, but focus more on technical aspects like card implementation during presentations to show deeper insights.
* **Unity Data Structures and Design Patterns:** It's recommended to watch Unity Unite Dev talks on YouTube to learn about data structures, design patterns, and setting up projects.

### Learning Outcomes

“You design a thoughtful solution to a complex problem. You regularly involve various stakeholders in the creation process and draw on extensive- self-selected- and self-created professional knowledge and skills. You base the solution on insights and examples from research. This results in a product in which existing ideas are combined in your own way and the possible impact on the target group and its immediate environment is taken into account.”

Source: NHL Stenden University of Applied Sciences (Red.). (z.d.). CMD\_LWD\_the\_Manual\_EN\_2324\_ SPREAD DRUK. CMD Leeuwarden.

#### Rewritten Outcome

*“I designed a video game using HTML, CSS, JavaScript, and libraries like p5, p5.play, and p5.sound. I regularly involved stakeholders in the process and based my solution on research insights. Additionally, I created a website for an external client using HTML, CSS, and the GSAP library for animations, combining existing ideas in my way while considering the impact on the target audience.”*

### Learning Goals

#### During this period, I want to create an ‘object-based’ structure in p5 by learning the library

##### Knowledge

###### Starting Point:

I would consider myself to be pretty experienced with programming already. I followed ‘Informatica’ in school, where I first encountered the *p5* library. I also followed a year of HBO-ICT, took a Unity course, focused on programming throughout CMD, and did it as a hobby. Needless to say, when I heard we would be working with HTML, CSS and JavaScript, I looked elsewhere for a challenge. This is why I chose to revisit this library with my current coding skills to create a mini-game for the escape room. As for my experience with object-oriented programming, I’ve had experience in C# with that.

###### Current Knowledge:

I can create an old Western NES/Arcade-style game using JavaScript and the *p5* library as a framework. By creating a class-based structure where different elements in the game have their own class, I can create clarity and organisation in my code. This method also easily allows the expansion of functionality without making the code unreadable.

###### Sources Used:

* p5 Library
* p5 Reference
* OOP help, Jelmer Terpstra

##### Skills

###### Demonstrating Skills

I started by simply (re)learning the *p5* library. This includes understanding how the elements are rendered:

1. Preload() | Used to load all the external assets. (SFX, Images)
2. Setup() | Displays everything on the canvas for the first frame.
3. Draw() | Updates the canvas every frame.

Afterwards, I started by drawing simple shapes like rectangles and ellipses and trying to move them using logic. I also learned how the position of objects was calculated which was the top-left pixel. This setting could be changed using rectMode(CENTER)/ellipseMode(CENTER).

I made the first simple prototype of the game using these shapes and when I added more functionality to the player and enemies I moved them into classes. A class is an artificial object that can be created from the Setup(). Each class has their unique attributes that can be customised using a Constructor().

A class can also have functions. This way I could handle the Setup(), and Draw() of each object in their class which made the Game.js less cluttered. It also made it clearer for me because I did not have to search for where I had to code. If I wanted to change the logic of the player I could do that from the Player class in the Player.js script.

##### Attitude

Reflection on Approach:  
I approached this competency with a strong sense of curiosity and a drive to challenge myself beyond the basic requirements. Given my prior experience with programming, I wanted to push my boundaries by applying object-oriented programming (OOP) principles to p5.js, creating a well-structured and scalable mini-game. This meant not just learning the library but also learning how to use it effectively in an organized way.

I actively sought feedback from my peers and mentors to refine my work. When I encountered problems with structuring my classes efficiently, I reached out to Jelmer Terpstra from HBO-ICT year 4 for help. His experience helped me understand how to tune my approach and avoid common pitfalls in OOP. Sadly we discovered that abstract classes are not native to JavaScript, which could have saved me a lot of time. I also reached out to Tjerk for coding advice. An example of this was when I wanted the laser to gradually move towards the player instead of snapping. I was helped with an additional library for *p5* that added easing functions.

###### Successes

* Implemented a class-based system
* Improved clarity in the code
* Accounted for scalability

###### Failures

* Had no access to abstract classes which meant that I had to write the same code for all 3 enemies
* Duplicates of code are not efficient

##### Transfer

Moving forward, I want to build on what I learned about structuring game logic in JavaScript and apply these skills to a different framework or engine, like Unity or Unreal Engine. While p5.js was a great tool for understanding OOP in JavaScript, I want to explore how I can optimize OOP in a more complex engine.

One key improvement I want to make is reducing redundant code. Since JavaScript doesn’t support abstract classes natively, I had to repeat code for different enemy types. In future projects, I’ll look into using design patterns like composition over inheritance or leveraging C# for better structure.

By applying these lessons, I aim to make my code more efficient, reusable, and scalable, especially as I move toward larger projects.

##### Discussed Learning Outcomes:

I design a thoughtful solution to a complex problem.

I regularly involve various stakeholders in the creation process.

I draw on extensive self-selected and self-created professional knowledge and skills.

I base my solution on insights and examples from research.

I combine existing ideas in my own way to create a unique product.

I consider the possible impact of my product on the target group and its immediate environment.

#### During this period, I want to transfer my C# object-based programming knowledge over to JavaScript so I can teach myself to learn new languages quickly.

##### Knowledge:

###### Starting Point:

I already have a strong foundation in object-oriented programming, mainly in C#. I've worked with Unity, where I structured game logic using classes. Now, I want to transfer that structured approach over to JavaScript to see how well OOP translates between the two languages. This will help me understand JavaScript’s capabilities and limitations compared to C#.

###### Current Knowledge:

I now know that while JavaScript can work with classes, which is what I’m used to, it does not natively support abstract classes. While this is not a very big problem since JavaScript is not designed to handle game logic, I would not choose to work with JavaScript indefinitely. For this, I would rather stick with C# and Unity.

##### Skills

###### Demonstrating Skills:

I’ve translated my knowledge about object-oriented programming (OOP) over to JavaScript. Implementing the class system has allowed me to use game development principles from my Unity course inside the p5 library like instantiating objects, using sprite sheets for my assets, and using a state-based system for the player and enemies. While the logic does not directly transfer over to JavaScript, I found myself easily connecting the dots.

Here are some examples:

|  |  |
| --- | --- |
| Unity | JavaScript (p5) |
| Instantiate | Object = New Class(x , y ,….) |
| Update() | Draw() |
|  |  |

#### During this period, I want to learn new functions within JavaScript (that were previously unavailable in C#).

#### During this period, I want to create a functioning mini-game for an overlapping escape room project by using a JavaScript game library.

#### During this period, I want to learn to combine different libraries to fit my needs and make the development process more efficient.

#### During this period, I want to use a pre-existing design to create a scalable website using HTML, CSS and JavaScript.

#### During this period, I want to learn to use the GSAP JavaScript library to animate web elements.

#### During this period, I want to create my own pixel art assets for the mini-game by attending a lecture and using Asesprite.

## Organise

### Learning Outcomes

*“You are working on a complex task where it is difficult to map out in advance what needs to be done and what the result should be. In order to achieve an optimal result with an effective and efficient working method, you make a plan of action in advance and formulate relevant success criteria. In addition to progress, you monitor the efficiency of the work process and the quality of performance You make interventions, if necessary, to optimize the work process and achieve a better result. In cooperation, you have an eye for the different talents within your team and you deploy them as well as possible. You ensure a constructive atmosphere and shared responsibility for the work process.”*

Source: NHL Stenden University of Applied Sciences (Red.). (z.d.). CMD\_LWD\_the\_Manual\_EN\_2324\_ SPREAD DRUK. CMD Leeuwarden.

#### Rewritten Outcome

*“I worked on an organization plan for a Game Development studio, where I planned the structure and legal framework for the company. To achieve an optimal result, I created a clear action plan and formulated success criteria. I also focused on leveraging the different talents within our team, ensuring a constructive atmosphere and shared responsibility for the work process.”*

### Learning Goals

#### During this period, I want to make a structure for our organisation taking legalities into account by researching Dutch legal forms for companies and attending a kvk seminar.

#### During this period, I want to make a structure for our game development studio by researching the different roles of an indie game studio and discussing the interests of the employees.

# Final Thoughts

# Appendices