Research and Brainstorming idea

Great thinking! Yes — there *are* several existing products that are pretty similar in spirit to your idea of a working-memory / executive-function training website. Here's a 1-page research-style summary (plus analysis) on similar tools, how they compare to your idea, and possible gaps you could fill.

Research: Existing Tools for Working Memory & Executive Function Training

1. Cogmed

- Cogmed is one of the most well-known working memory training programs. (Wikipedia)
- It was originally developed in a neuroscience lab (Karolinska Institute) to deliver working memory challenges and has been used clinically (e.g., for ADHD, learning disabilities). (Wikipedia)
- Strengths: very research-driven; adaptive difficulty; targeted working memory.
- Limitations: may feel clinical or "rehab"-oriented rather than gamified; likely subscription / cost.

2. NeuroTracker

- A cognitive training system that focuses on working memory, attention, and executive function. (NeuroTrackerX)
- Uses a 3D multiple-object tracking (MOT) paradigm: the user keeps track of moving objects in space, which loads working memory and attention. (NeuroTrackerX)
- Strengths: strong research backing; uses an engaging visual paradigm; is used in both applied (e.g., sports) and clinical contexts.
- Limitations: may require more specialized deployment; less "web game" feel, potentially more like a training tool.

3. Dynseo Brain Games

- Offers logic and memory games specifically designed to train working memory. (Dynseo)
- Examples: remembering a sequence of ingredients (short-term / working memory), reorganizing information ("The Lost Poem" game), etc. (Dynseo)
- Strengths: gamified, with concrete tasks tied to daily life; flexible difficulty; variety of game types.
- Limitations: may be more simplistic or "mini-game"-style; might lack deeply adaptive or personalized scaffolding.

4. Effectivate

- A brain training platform designed to improve working memory, executive attention, cognitive flexibility, and more. (Effectivate)
- Users complete "workouts" composed of multiple games; the software adapts difficulty based on user performance. (Effectivate)
- Also includes enrichment content: memory strategies, lectures on sleep/nutrition, and how daily habits affect cognitive function. (Effectivate)
- Strengths: very well-rounded; combines direct training + education; adaptive; tracks progress.
- Limitations: primarily targeted at older adults (Effectivate seems to lean toward 55+ users) (Effectivate) — may not be optimized for adolescents or middle schoolers.

5. Readlax

- A brain-training app that offers web-based "mini workouts" (games) to improve memory, focus, speed reading, etc. (readlax.com)
- Short games (~5-7 minutes) make it accessible and easy to drop in. (readlax.com)
- Strengths: very user-friendly, light, low barrier to entry.
- Limitations: may not specifically target *executive functioning* in a structured way (versus general "brain fitness").

6. Play Attention

- Designed more for attention training; includes memory components like working memory, short-term memory, spatial memory. (playattention.com)
- Gamified: users do tasks (e.g., games like "smashing asteroids") to train attention, memory, coordination, etc. (playattention.com)
- Strengths: very engaging, designed for families, potentially good for younger users.
- Limitations: more focused on attention than pure working memory; may lack deep pattern-based memory challenges.

7. MentalUP

- A game platform for children (ages ~6–15) with over 60 scientifically designed exercises for memory, attention, logic, verbal and visual skills. (Wikipedia)
- Very close in target audience to your "grade 6–10" idea.
- Strengths: age-appropriate; variety; well-designed by academicians and game designers.
- Limitations: gamified "mini-exercises" might lack adaptive lesson progression based on struggle areas; may not have deep executive-function training built-in.

8. Meister Cody

- An educational game designed for children with math weaknesses / dyscalculia, but includes memory and cognitive training. (Wikipedia)

- Strengths: research-based; diagnostic + therapeutic; very learner-centered.
- Limitations: very math-focused; may not generalize to purely memory/executive function training for broad use.

Analysis: Gaps & Opportunities for Your Project

Based on the existing landscape, here are some potential opportunities (or "white space") for your nine-month project to stand out and add value:

1. **Age-Targeted Design for Middle & High Schoolers**
    - Many existing platforms either target *young children* (MentalUP) or *older adults* (Effectivate). A memory training site specifically designed for **grades 6–10**, with age-appropriate UI, rewards, and pacing, could fill a niche.
2. **Pattern-Based Memory Challenges**
    - Your idea of "remember in patterns" is compelling. While many apps do working memory tasks, fewer focus on *pattern recall* (sequences, spatial-temporal patterns, multi-modal patterns). Designing exercises around that could differentiate your project.
3. **Gamified Feedback + Sensory Engagement**
    - You plan to use "sounds and special effects" based on user responses. That game-like, sensory-rich feedback loop could increase engagement more than some of the clinical-style platforms.
4. **Adaptive Learning Based on Weaknesses**
    - While several tools adapt difficulty, fewer may *diagnose specific sub-skills of executive functioning and tailor training accordingly*. You could build a system that tracks exactly which memory / executive sub-skills a user struggles with (e.g., verbal WM vs. visual WM vs. inhibition) and gives tailored challenges + "lessons."
5. **Progress Tracking + Educational Content**
    - Like Effectivate, adding *strategy content* (how to take notes, mnemonic techniques, chunking strategies) could make the tool not just a "game" but also a *learning resource*. For students, bridging training exercises with real-life study habits could be very valuable.
6. **Low Barrier to Entry + Accessibility**
    - If your site is browser-based, mobile-friendly, and doesn't require heavy installs, that makes it more accessible for students in school settings.
7. **Research Validation**
    - To make your tool credible, you could build in mini "assessments" or measure progress over time, and possibly partner with educators or cognitive scientists to validate improvements.

Conclusion

- **Yes**, there are quite a few existing products that train working memory and executive function (e.g., Cogmed, NeuroTracker, Effectivate, Dynseo, MentalUP).
- However, **none seem to perfectly match** your exact vision: a *pattern-based, gamey, memory-training web app for middle/high school students with customized lessons and feedback*.
- Your project has a strong opportunity to fill a niche by combining **engaging gamification**, **adaptive challenges**, and **educational support** in a way that's specifically tailored for students in grades 6–10.

If you like, I can also do **competitive analysis** (with strengths/weaknesses of top 5 tools + market size + how to position your app) — do you want me to do that?