Teacher Work Attachment Plus (TWA+) Programme

Work Attachment Experience with Advanced Micro Devices, Inc (AMD)

from 6 May 2025 to 19 May 2025

Prepared by Wong Kai Ning
of Anderson Serangoon Junior College

My Work Attachment Story

Chapter 1: The Setting and the Catalyst

AMD is a semiconductor company that designs and develops various computing technologies, including central processing units (CPUs), graphics processing units (GPUs), Field-Programmable Gate Arrays (FPGAs), and Systems-on-a-Chip (SoCs), for a wide range of markets like gaming, data centers, Artificial Intelligence (AI), and embedded systems. Their products and technologies are used in high-performance computing, including data centers, gaming, and AI acceleration.

I pursued this TWA+ experience to gain deeper insights into the current needs and trends within the STEM industry. As a member of a school designated as a Centre of Excellence (COE) in science, technology, engineering and mathematics (STEM) and interdisciplinary learning, I find this learning valuable in ensuring our teaching remains relevant in an evolving landscape.

Before the work attachment, I possessed limited knowledge of the semiconductor industry and AMD's role within this ecosystem. The TWA+ programme description particularly intrigued me when it mentioned opportunities involving adult learner training and AMD's STEM education curriculum, two areas closely aligned with my work portfolio, which challenged my initial perception of AMD as solely a hardware manufacturer. Through this experience, I also aim to enhance my adaptive and inventive skills while contributing to AMD's STEM education curriculum.

My Work Attachment Story

Chapter 2: The Plot

During my work attachment with the programme management team, I learned about their initiatives for technical staff training and talent acquisition, which included scholarships, internships and AMD's STEM education curriculum for community outreach programmes. Their commitment to human resource development and flat hierarchy is appreciated by staff and interns. Despite being a large company, staff suggestions are heard and implemented swiftly, contributing to the company's overall agility and maintaining its competitive edge.

In a roundtable discussion with university student interns at AMD, many revealed that only 10–20% of their engineering degree coursework was directly applicable to their roles, with most skills being acquired through on-the-job training. Their work primarily involved product testing, data analysis and process optimisation. I observed that employees in the engineering units needed to be adaptable, detail-oriented, and capable of driving product innovations. This experience highlighted the importance of developing adaptive and inventive thinking skills in our students to better prepare them for their future careers.

I also gained valuable insight into the role of technical writers. While they traditionally translate complex technical information into user-friendly documentation, at AMD, they played a crucial role in transforming technical experts' knowledge into digestible online training modules for less experienced staff. Despite not being subject matter experts themselves, these writers demonstrated dedication to research and accuracy while ensuring information remained accessible to adult learners.

My Work Attachment Story

Chapter 3: The Resolution

On the penultimate day of my attachment, I presented my observations and recommendations for enhancing AMD's STEM education curriculum to the programme management team and functional leads. A key discussion point emerged about developing students into autonomous learners with high resilience, crucial traits in an industry where rapid innovation demands self-directed problem-solving.

This discussion, along with the AMD interns' sharing, highlighted three critical areas for student development: self-directed learning capabilities, strong communication skills, and solid scientific fundamentals. As future careers may differ significantly from university studies, a strong foundation in science with adaptability is paramount for students to excel in the working world. As a head of department who oversees the Science Department and the Science, Technology, Engineering, Arts and Mathematics (STEAM) Committee in school, these are areas that I will bear in mind when planning programmes and providing education and career guidance (ECG) advice to students.

Given these insights, I would also strongly encourage staff participation in TWA+ for both personal development and enhanced career guidance capabilities. Much like how staff at AMD feel supported and actively take part in the company's corporate social responsibility (CSR) events, I hope to also give my staff the support and empower them to go for more of such TWA+ work attachment or learning journeys. Similar to my experience, such exchange can also be two ways as organisations can also better understand the needs of schools from us and (spur) possible collaborations that can enhance students' learning.

My Work Attachment Story

Chapter 3: The Resolution

How I Have Applied Learning from My Attachment to Chemistry Lessons and Department Work

To **strengthen foundations in scientific reasoning**, I now dedicate more time to helping students understand the rationale behind experimental designs, moving beyond merely training them to perform well in science practical examinations. This deeper approach enhances their experiment-related comprehension and analytical thinking skills, which are valuable for careers in technology and science.

To **better prepare students for real-world applications and data-driven innovations** in private sector companies like AMD, our department has incorporated the use of common industry apparatus such as digital sensors, namely temperature and pH sensors, into our chemistry practical sessions from this year onwards. During lessons, I guide students in meaningfully interpreting data obtained from equipment such as oxygen (O2) gas sensors, helping them understand how numerical analysis influences decision-making processes.

My Work Attachment Story

Chapter 3: The Resolution

How I Have Applied Learning from My Attachment to Chemistry Lessons and Department Work

To **strengthen self-directed learning (SDL)**: The insights I gleaned during the work attachment reinforced the importance of developing our students into self-directed and adaptable learners with a strong foundation in science. Our department has developed a tool to instill in students the ability to self-assess, thereby enhancing their capacity for self-directed learning. This tool, known as the 'Learning Objective Guide', comprises a set of actionable learning goals for each topic, tied to specific questions in the chemistry tutorials, revision booklets and assessments. They form the success criteria guiding students to self-assess if they have acquired specific knowledge and skills. With these tools, students can easily identify their learning gaps and are empowered to actively work towards closing the gaps. I will continue to lead the Chemistry Department in strengthening the implementation of the tool while leveraging educational technology (such as the enhanced capabilities of the Singapore Student Learning Space) to improve teachers' efficiency in developing students' SDL capabilities.

My Work Attachment Story

Chapter 3: The Resolution

How I Have Applied Learning from My Attachment to my work in STEAM Committee

The cohort-wide initiatives in my school's STEAM programme are designed to strengthen students' **adaptive thinking, inventive capabilities, and communication skills** with interdisciplinary emphasis. The attachment highlighted the importance of these skills in helping our students to thrive in the future. As we continue to refine and improve, we will ensure the following remains key drivers of our programme:

- Fostering creative problem-solving abilities through design thinking sessions that challenge students to develop innovative solutions for sustainability-related issues
- Exposing students to real-world innovation and practical applications across various industries through learning journeys that emphasise multidisciplinary perspectives and complex sustainability challenges
- Developing communication skills through multiple platforms, including in-class group presentations, assembly presentation sessions, facilitation of student-led workshops, and participation in STEAM-related overseas exchange programmes