

A- INTRODUCTION

Connecting Early Answers in the ARP Cycle Steps 1 and 2 to Later Questions in Steps 3 and 4

Steps 1 & 2: Initial Questions: Explored industry context and curriculum gaps:

- Gender and diversity in VFX, animation, post-production.
- Role of soft skills in inclusion and employability.
- Need for restructuring MA course to embed soft skills.
- Possible delivery methods for soft skills development.

Impact on Steps 3 & 4: Answers from Steps 1–2 informed the design of interventions and evaluation questions:

- Tested gradual implementation of soft skills development.
- Assessed effectiveness of scaffolded flipped classroom and reflection channels.
- Measured impact on professional growth and student engagement.
- Investigated students' metacognitive knowledge and regulation of soft skills.

Key Link: Early findings shaped later research focus:

- From “Why soft skills matter?” → “How can they be effectively taught and monitored?”

Unfortunately, student participation in the final workshop was zero due to the following reasons:

- Stress and tiredness, as the workshop was scheduled at the end of the term, close to submission and presentation deadlines.
- Optional status: Because I had to find an extra slot in the schedule, my course leader explicitly stated that the workshop needed to be optional, which jeopardized attendance.
- Greater interest in hard skills development to meet deadlines.
- Timing conflict, as the workshop was scheduled immediately before another mandatory class.

This affected my data gathering, as I had intended to collect more qualitative data from students through an extensive questionnaire and by using observation and field notes to capture their behaviour and thought processes during activities.

Therefore, I decided to analyse students' blogs, all Padlet documentation, PDF/PPT presentations, and observations from class interactions to gather more information and check progress against my goals. According to my tutor Kwame, the research method applied here is Observation.

Although the workshop was cancelled, analysing existing artifacts and classroom observations provided authentic evidence to address my research questions on soft skills development, engagement, and metacognitive practices.

Despite the cancelled workshop, triangulating data from blogs, Padlet, presentations, and classroom observations provided a reliable basis to address all three research questions.

All data analysed were part of normal coursework and anonymised for reporting.

B- ACTION RESEARCH QUESTIONS TO ANSWER

I need to answer the following questions set at the beginning of my Action Research:

1. Will it be effective to implement soft skills development gradually across three stages in the first term by:

- a) Using a scaffolded flipped classroom model as the delivery methodology to increase time-on-task no matter the students' level and increase the time where soft skills can be used and analysed in depth.
- b) Offering six channels to support students' reflection and application of soft skills: *2 workshops (beginning and end), Padlet Journalling, Project Presentations, Blog* and the *Soft Skills Passport*. Every class I did mention the use of Soft Skills passport, and I did state the requirements of mentioning soft skills on both project presentations. While monitoring the Soft Skills Passport usage, I updated a new version and notified the students, but only 1 student used the updated version...

2. Does this intervention—focused on the identification and application of STEM soft skills—actually improve students' professional growth ?

Specifically, does it lead to improvements in the quality of their work, engagement, performance, and final unit assignment submissions (e.g., reflective blogs, critical appraisals, collaborative work, and final videos showcasing hard skills)?

3. What do students think about soft skills? I aim to explore their:

- a) **Metacognitive Knowledge:** What students know about soft skills and their importance.
- b) **Metacognitive Regulation:** How students plan, monitor, and evaluate their use of soft skills in learning and collaboration.

(Source: ["What is metacognition and how can it help you?" – BBC Bitesize](#))

The first question are easy to answer quantitatively and qualitatively as there are concrete data gathered through blogs, Padlet and oral/written final presentations. However, the 2nd and 3rd question must rely on my own data analysis and interpretations due to lack of students' reflections (data that I was intending to extract from the "optional" final Workshop through observation, field note and questionnaires and unfortunately was cancelled due to zero attendance).

All data below were acquired from Padlet Journalling, Presentation slides, Class interactions, Soft Skills Passport and Introductory Workshop. The timeline I used to evaluate their soft skills usage matches with the in-class project production.

Padlet Sample below is a snapshot of 16 students showing their in-class project. I cropped out the top columns to hide they identities. This is one of my 2 sources of information. The other was the Blogs, which were used more towards the end of the in-class project.

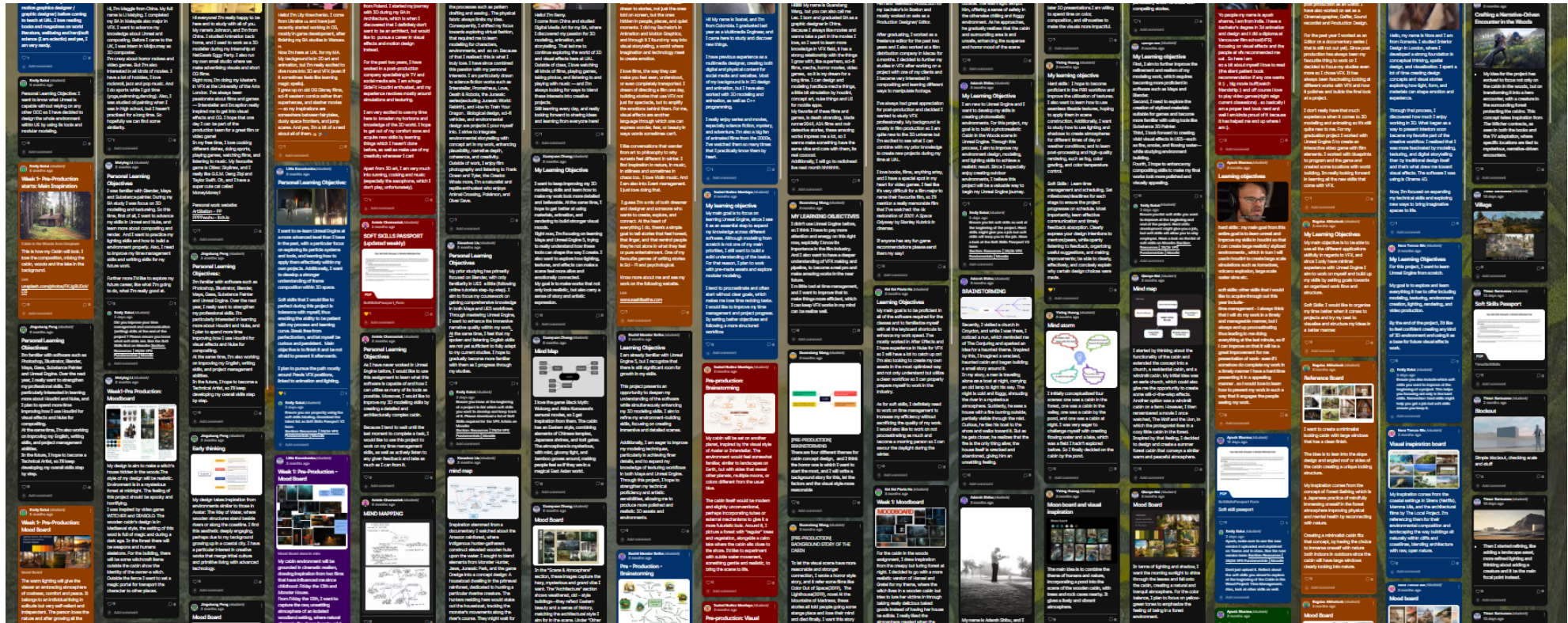
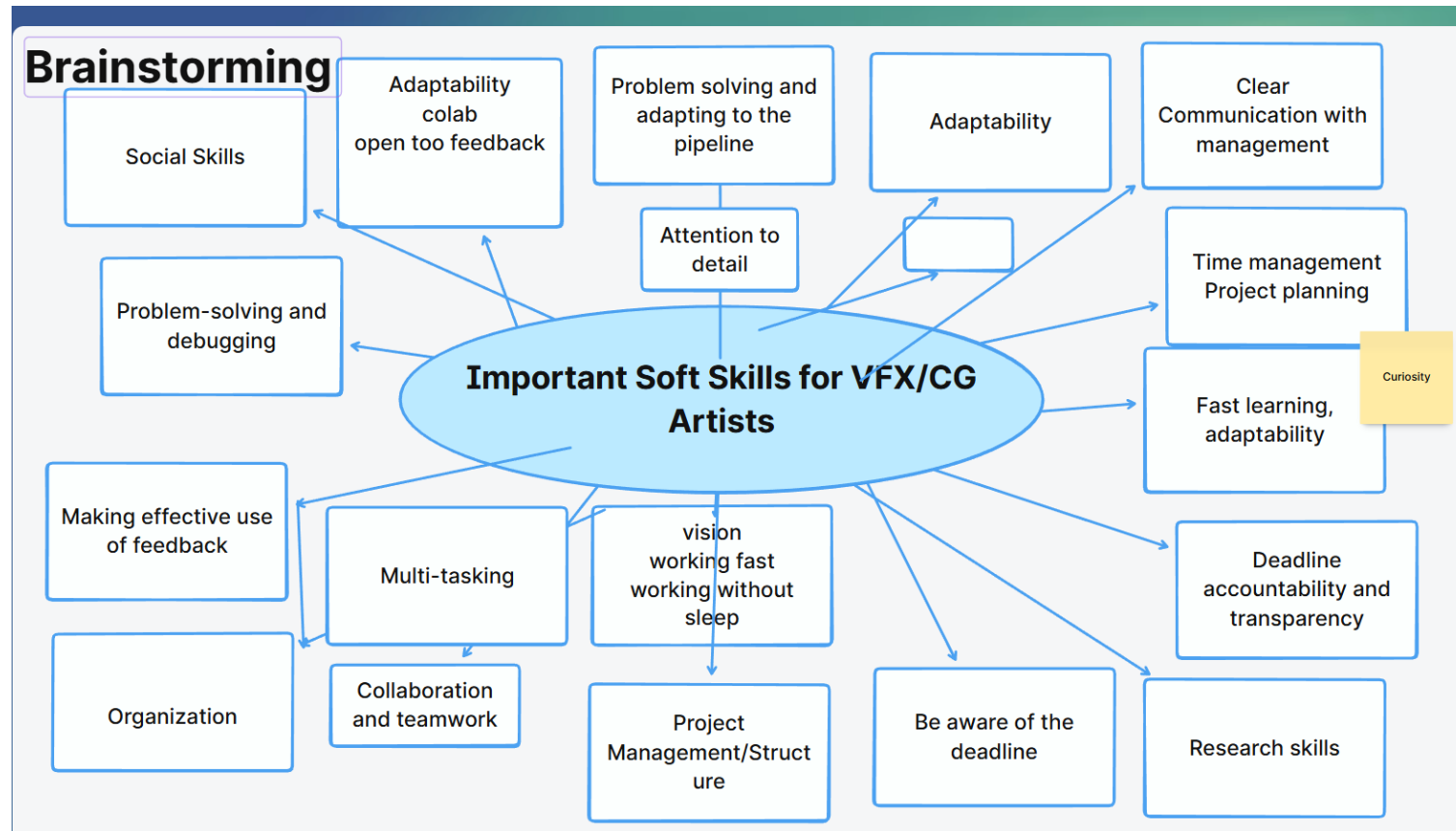


Table 1- Introductory Workshop on Soft Skills Importance: during brainstorm, students needed to write soft skills in the Padlet below:



Unfortunately, I noticed some students flipping to my next slide with the list of soft skills and cheated, so I decided to ignore some of them with the same wording as my slide..). Below is the summary of soft skills they mentioned (STEM related is in red)

Social Skills	Adaptability	Collaboration	Open to feedback, making effective use of feedback	Problem solving	Clear Communication	Time Management
Project Planning, Project management/Structure	Fast Learning	Working fast without sleep	Accountability and Transparency	Research Skills	Be Aware of Deadline	Multi-tasking
Organization	Vision	Curiosity				

In another activity, I asked students to match the Soft Skills usage with their respective Soft Skills definition on the left. They did fine overall. This is the first time I noticed that some of the soft skills definitions were not very understandable to the students (items 2 and 3 below). In middle of the term, I changed the list of soft skills in the Passport so students can identify easily and accurately.

1- Problem-solving and debugging mindset	A VFX artist is working on a particle simulation for falling leaves, but the particles are clipping through geometry. They troubleshoot by adjusting collision settings, testing different solvers, and checking mesh normals until the issue is resolved.	✓
2- Critical thinking and analytical skills	While compositing a shot, the artist notices the lighting doesn't match the plate. Instead of just adjusting brightness, they analyze the light direction, color temperature, and shadow softness to make the CG elements integrate more convincingly.	✗
3- Logical reasoning and systems thinking	An artist builds a Houdini setup for procedural tree generation. They plan the node structure so that changes to trunk shape automatically update branches and leaves, showing an understanding of how each part of the system affects the whole.	✗
4- Attention to detail and precision	During rotoscoping, the artist carefully refines edge feathering and motion blur to ensure the mask blends seamlessly with the background, avoiding any flickering or unnatural edges in the final composite.	✓
5- Adaptability and continuous learning	Mid-project, the studio switches from Maya to Blender for asset creation. The artist quickly learns the new interface and workflow, adapting their pipeline without delaying the delivery schedule.	✓
6- Collaboration and teamwork across diverse backgrounds	In a team with artists from different countries and disciplines, the VFX artist shares feedback respectfully, attends daily syncs, and integrates suggestions from the lighting and animation departments to improve the final shot.	✓
7- Patience and perseverance	After multiple failed attempts to simulate realistic fire, the artist keeps iterating—tweaking parameters, testing render settings, and reviewing reference footage—until the effect meets the director's vision.	✓
8- Creative thinking and artistic vision	Instead of using a generic explosion effect, the artist designs a stylized burst that matches the film's surreal tone — using color grading, timing, and shape language to enhance the emotional impact of the scene.	✓

Table 2- Words of the students according to the type of document (my comments are in red):

Engaged with Soft Skills ?	Soft Skills Passport	Beginning of the Project on Padlet 8 interactions	End of the Project on Padlet, Blog or Slides 11 interactions
Student 1 YES	Old version: only filled once as the other weeks were mere duplicates with the same evidence. She ticks on: Problem-solving and debugging, Adaptability and continuous learning, Patience and perseverance, Creative Thinking and Artistic Vision	Because I tend to wait until the last moment to complete a task, I would like to use this project to work on my time management skills, as well as actively listen to any given feedback and take as much as I can from it.	Learnt that good time management is very important to avoid unnecessary stress. In this project, I made the mistake of leaving most of the work for the last minute; I will try to divide the process into smaller, tasks throughout a longer period next time. It seems that student tackled many other skills mentioned in the passport.
Student 2 partially	no	time management - i always think that i will do my work in a timely and manageable manner, but i always end up procrastinating thus leading to me doing everything at the last minute. Presentation of work - even if i somehow do complete my work in a timely manner i have a hard time presenting it in a appealing manner . so i would love to learn how to present my work in such a way that it engages the people seeing my work.	Nothing
Student 3 YES	The Only Student to fill it correctly... <ul style="list-style-type: none"> W3: problem solving and debugging, creative thinking and artistic vision W4: attention to detail and precision W5: attention to detail and precision, creative thinking and artistic vision, W6: Patience and Perseverance W7 new version: attention to detail, creativity and vision W8: attention to detail W9: Attention to detail and time management W10: problem solving and debugging, technical engagement, attention to detail, team working, creativity and vision, time management. 	I'm little bad at time management , and I want to improve that to make things more efficient, which I can keep VFX works in my mind can be realize well.	My comment: I can see student progressed and used the soft skills passport effectively. In the end, W 10, he realised he used more skills than anticipated. All evidence is clear in the Passport itself. <ul style="list-style-type: none"> Problem Solving: solve sooooo many problems about UE5, like importing my one hundred million faces huge fbx to unreal, like 3 hours, find all the ways on internet, even I afraid I cant finish my projects, but finally found the way, and complete proj well I think. Technical Engagement: the use of ue5 and modeling get better and better, now 7:14, I think, I can go ILM tomorrow. Attention to Detail: so many detail for my cabin, the structure, the lighting, brilliant. Team-working: ask sooo many questions about ue with my homies, I cant make it without them. Creativity and Vision: tried the horror theme proj that never do before. Time Management: finished proj before ddl 2 an half hours.
Student 4 YES	Soft Skills Passport: only week 3 <ul style="list-style-type: none"> W3: Problem-solving: I decided to implement the method that Emily shared with us, which is to tackle tasks one small thing at a time so everything is less intimidating. This helped me work on my procrastination and I was able to start setting up my art blog as well as work on my projects across the week rather than just do it all in one day [seem like time management]. Continuous Learning: I did some more practice on Maya and started a project on UE5. I learned more shortcuts on the keyboard and did the LinkedIn Learning lessons for the week. 	I definitely need to work on time management to increase my efficiency without sacrificing the quality of my work. I would also like to work on not procrastinating as much and become a morning person so I can savour the daylight during the winter.	<ul style="list-style-type: none"> Creative Thinking and Artistic Vision: Conceptualizing my cabin in the woods in my moodboard. I wanted to make a creepy forest that is surrounded by fog and lit by the moon. Problem-solving and debugging: identified issues with UV's, fixed them and kept troubleshooting as I went. Critical Thinking and analytical skills: referencing cabins to see how they are built, following the references to make sure the proportions of my cabin are accurate. Adaptability and Continuous Learning: combing everything I learned from the Unreal Engine lectures for the first time: Using height maps for the landscape, the water system for the river, importing an HDRI as my custom sky. I learned how to play around with volumetric fog to create the mood that I wanted to convey. Making my own water shader was also an

			<p>interesting experience, I was able to change the wave direction, speed, translucency etc.</p> <ul style="list-style-type: none"> o Collaboration and Teamwork: during this phase of my work, I asked around for a lot of feedback for my composition, whether the trees looked good or not if placed this way, how dense should I make my forest etc. I think it's very important to receive feedback to see how the project is doing and I will make it my goal to work on asking more people for feedback as well as receiving and translating the feedback into my own work. [feedback receptiveness]
Student 5 YES	no	<p>Tolerance with myself, thus enabling the ability to be patient with my process and learning curve [resilience]. Break free from perfectionism, and let myself be curious and persistent [adaptability ?] Main objective is to finish it and be not afraid to present it afterwards.</p>	<p>Main Soft Skills learned through:</p> <ol style="list-style-type: none"> 1. Troubleshooting [Problem Solving]; 2. Adopted the Pomodoro technique for focus. [time management] 3. Anger/Frustration Management [resilience] 4. Research skills; [project management] <p>Soft skills to learn/perfect:</p> <ol style="list-style-type: none"> 1. Time Management in terms of the pipeline; [project management] 2. Planning out the real scope of the project. [project management] <p>My comments: student needs more precise labelling as this facilitate better understanding and more optimistic labelling, so instead of anger management and patience and persistence, better label it resilience as the umbrella term.</p>
Student 6 NO	no	<p>Through this project, I hope to strengthen my technical proficiency and artistic sensibilities, allowing me to produce more polished and realistic 3D assets and environments.</p>	nothing
Student 7 YES	no	<p>Learn time management and scheduling. Set milestones/deadlines for each stage to ensure the project progresses on schedule [mislabelled as project management]. Most importantly, learn effective communication and timely feedback absorption. Clearly express your design intentions to mentors/peers, while openly listening to feedback, organizing useful suggestions, and making improvements; be able to clearly, effectively, and concisely explain why certain design choices were made.</p>	<p>The soft skill learned from this project is time management. In long-term projects like this, making long-term time plans and arranging tasks down to the day is very helpful.</p>
Student 8 NO (invalidated)	<p>random filling repeating every 2 weeks: disqualified...</p> <ul style="list-style-type: none"> o W1: Problem-solving and debugging, Logical reasoning and systems thinking, Adaptability and continuous learning, Patience and perseverance o W2: Critical thinking and analytical skills, Attention to detail and precision, Collaboration and teamwork, Creative Thinking and Artistic Vision, <p>student copy and pasted the same skills for 2 weeks to the next, until the end. Too robotic and automated without thorough understanding.</p>	Nothing	nothing
Student 9 YES	no	<p>I tend to procrastinate and often start without clear goals, which makes me lose time redoing tasks. I would like to</p>	<p>My soft skills did not improve much in terms of time management. However, I developed problem-solving skills when</p>

		improve my time management and project progress. By setting better objectives and following a more structured workflow. [project management]	Unreal Engine failed or crashed, and I learned to manage my emotions and frustration when foliage or textures did not work properly or caused the program to crash [resilience] .
Student 10 partially	no	nothing	I developed soft skills like problem-solving, time management, creativity, attention to detail, and organising my workflow across different software [planning and organizational]
Student 11 NO	no	nothing	nothing
Student 12 partially	no	I need to improve my time management skills and writing skills for my future work. [communication]	nothing
Student 13 YES	no	since I only have minimal experience with Unreal Engine I aim to work on myself and build up my skills by setting goals towards an organised work flow and structure. Soft Skills: I would like to organise my time better when it comes to projects and try my best to visualise and structure my ideas in a better manner [communication, project management]	Troubleshooting [problem solving] and working out issues that pop up in Unreal, I was able to solve most of my problems with Blueprints.
Student 14 partially	no	none	it helped me develop the ability to continuously try, analyze, and solve problems when facing challenges. [resilience and problem solving]
Student 15 partially	no	none	I became more organised in time management and learned to save multiple file versions to avoid losing progress [organizational] . This made my workflow more stable and helped me handle problems more calmly.
Student 16 partially	no	none	problem solving through testing and iteration, troubleshooting technical issues, working independently , researching and comparing different workflows (?), managing a large, long term creative process. [organizational]
final	YES: 7 / PARTIALLY: 7 / NO: 2 7 students evaluated and monitored reasonably well with soft skills throughout the project, 6 did it partially (either at the beginning or end) and 3 didn't monitor or evaluated their soft skills at all, remaining focused on hard skills only (of which one had the entry invalidated)		

Table 3- Interactions with the channels offered:

Engagement with Soft Skills with following materials:	Start Term	Middle Term	End Term
Blog (related to other classes)	no	no	no
Soft Skills Passport to be filled weekly	1/16	1/16	1/16
Padlet Journalling (used in Initial Presentation)	8/16	no	11/16
Final Presentation (Slide or Blog)			

Table 4a- Main Soft Skills explored by the students in both Padlet and Presentations slides:

	Soft Skills List	Frequency of identification	Details at the Beginning (Padlet)	Details at the End (Padlet, Slides)
1	Problem-Solving and debugging	8		<ul style="list-style-type: none"> • Student3: solve sooooo many problems about UE5, like importing my one hundred million faces huge fbx to unreal, like 3 hours, find all the ways on internet, even I afraid I cant finish my projects, but finally found the way, and complete proj well I think. • Student4: identified issues with UV's, fixed them and kept troubleshooting as I went. • Student5: Troubleshooting • Student9: I developed problem-solving skills when Unreal Engine failed or crashed. • Student10 • Student13: Troubleshooting and working out issues that pop up in Unreal, I was able to solve most of my problems with Blueprints. • Student14: [not labelled] it helped me develop the ability to continuously try, analyze, and solve problems when facing challenges. • Student16: problem solving through testing and iteration, troubleshooting technical issues.
2	Technical Engagement	1		Student3: the use of ue5 and modeling get better and better, now 7:14, I think, I can go ILM tomorrow.
3	Attention to Detail	2		<ul style="list-style-type: none"> • Student10 • Student3: the use of ue5 and modeling get better and better, now 7:14, I think, I can go ILM tomorrow.
4	Feedback receptiveness	3	<ul style="list-style-type: none"> • Student1: actively listen to any given feedback and take as much as I can from it. 	<ul style="list-style-type: none"> • Student1: Learnt that good time management is very important to avoid unnecessary stress. In this project, I made the mistake of leaving most of the work for the last minute; I will try to divide the process into smaller, tasks throughout a longer period next time. • Student4: [mislabelled as collaboration and teamwork] during this phase of my work, I asked around for a lot of feedback for my composition, whether the trees looked good or not if placed this way, how dense should I make my forest etc. I think it's very important to receive feedback to see how the project is doing and I will make it my goal to work on asking more people for feedback as well as receiving and translating the feedback into my own work • Student7: Most importantly, learn effective communication and timely feedback absorption. Clearly express your design intentions to mentors/peers, while openly listening to feedback, organizing useful suggestions, and making improvements; be able to clearly, effectively, and concisely explain why certain design choices were made.
5	Adaptability	2	Student5: [mislabelled] Break free from perfectionism, and let myself be curious and persistent	<ul style="list-style-type: none"> • Student4: combing everything I learned from the Unreal Engine lectures for the first time.

6	Communication	3	<ul style="list-style-type: none"> • Student12: I need to improve my writing skills. • Student13: [mislabelled] try my best to visualise and structure my ideas in a better manner 	Student7: Most importantly, learn effective communication and timely feedback absorption. Clearly express your design intentions to mentors/peers, while openly listening to feedback, organizing useful suggestions, and making improvements; be able to clearly, effectively, and concisely explain why certain design choices were made.
7	Team-working	1		Student3: ask sooo many questions about ue with my homies, I cant make it without them.
8	Initiative	0		
9	Proactivity	0		
10	Creativity and Artistic Vision	3		<ul style="list-style-type: none"> • Student3: tried the horror theme proj that never do before. • Student4: Conceptualizing my cabin in the woods in my moodboard. I wanted to make a creepy forest that is surrounded by fog and lit by the moon. • Student10
11	Time Management	10	<ul style="list-style-type: none"> • Student1: Because I tend to wait until the last moment to complete a task, I would like to use this project to work on my time management skills • Student2: I always think that i will do my work in a timely and manageable manner, but i always end up procrastinating thus leading to me doing everything at the last minute. • Student3: I'm little bad at time management, and I want to improve that to make things more efficient. • Student4: I definitely need to work on time management to increase my efficiency without sacrificing the quality of my work. I would also like to work on not procrastinating as much and become a morning person so I can savour the daylight during the winter. • Student12 	<ul style="list-style-type: none"> • Student3: finished proj before ddl 2 an half hours. • Student5: Adopted the Pomodoro technique for focus. • Student7: The soft skill learned from this project is time management. In long-term projects like this, making long-term time plans and arranging tasks down to the day is very helpful. • Student9: My soft skills did not improve much in terms of time management. • Student10 • Student15: I became more organised in time management
12	Resilience	3	Student5: [mislabelled] Tolerance with myself, thus enabling the ability to be patient with my process and learning curve	<ul style="list-style-type: none"> • Student5: [mislabelled] Anger/Frustration Management • Student9: I learned to manage my emotions and frustration when foliage or textures did not work properly or caused the program to crash. • Student14: [not labelled] it helped me develop the ability to continuously try, analyze, and solve problems when facing challenges.
13	Ability to Work Independently	1		<ul style="list-style-type: none"> • Student16
14	Self-Motivation	0		
15	Ability to Interpret Brief	0		

16	Project Management	4	<ul style="list-style-type: none"> • Student9: [mislabelled] I tend to procrastinate and often start without clear goals, which makes me lose time redoing tasks. I would like to improve my time management and project progress. By setting better objectives and following a more structured workflow. • Student13: [not labelled] since I only have minimal experience with Unreal Engine I aim to work on myself and build up my skills by setting goals towards an organised work flow and structure. I would like to organise my time better when it comes to projects 	<ul style="list-style-type: none"> • Student5: [mislabelled] Learned research skill. Need to learn: Time Management in terms of the pipeline; Planning out the real scope of the project. • Student7: [mislabelled] Learn time management and scheduling. Set milestones/deadlines for each stage to ensure the project progresses on schedule
17	Presentation and Negotiation	2	<ul style="list-style-type: none"> • Student2: even if i somehow do complete my work in a timely manner i have a hard time presenting it in a appealing manner. So i would love to learn how to present my work in such a way that it engages the people seeing my work. • Student5: Main objective is to finish it and be not afraid to present it afterwards. 	
18	Planning and Organizational	3		<ul style="list-style-type: none"> • Student10: [mislabelled] organising my workflow across different software. • Student15: [not labelled] learned to save multiple file versions to avoid losing progress. This made my workflow more stable and helped me handle problems more calmly. • Student16: [not labelled] managing a large, long term creative process.

Table 4b - Conclusion: below is a table listing soft skills used by minimum of 3 students. In red are Soft Skills related to STEM:

Soft Skills	Start Project	End Project
Time Management	5	6 (1 student also at the start)
Problem-Solving and debugging	0	8
Project Management (normally considered as hard skills and mislabelled as time management, scheduling)	2	2
Feedback Receptiveness	1	3 (1 also used at the start)
Communication	2	1
Creativity and Artistic Vision	0	3
Resilience	1	3 (1 student also at the start)
Planning and Organizational		3

Table 5: Evaluating Student Background related to Visual Effects

Student	Directly related	Indirectly related	No relation	Unreal Engine Basic Knowledge ?
1- AC	2 years postproduction		BA Architecture	no
2- AS	BA 3d animation and design Diploma VFX			
3- GW		BA Graphic Designer		no
4- KH		BA Film and TV Production / work as production designer and freelance editor including AE.		no
5- LK	Game development, 2d art and animation	?		yes
6- SS	BA animation and motion graphics / VFX work			yes
7- YH		BA Digital Media Art		no
8- TS	YES			yes
9- IM		BA Multimedia Engineer / multimedia designer, 2d design and animation, C++		no
10- AS			BA Electronics and Communication Engineering	no
11- QM	BA Animation			no
12- ML	BA VFX	3d compositor at Midjourney (?)		no
13- RA		BA in film television and digital production / worked as cinematographer, gaffer, sound recordist and production design		minimal
14- XL			BA Fashion Design	minimal
15- XZ	BA Digital Media Art (3d modeling and animation)			no
16- NB		Working with 3d interior design	BA Interior Design	no
total	8/16	5/16	3/16	3/16