Strategies for Creating Productive, Healthy Student Teams

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#GDC22

Good afternoon!

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And greetings from Rochester, NY

I'm Erika Mesh, a lecturer here in the School of Interactive Games and Media at the Rochester Institute of Technology.

Here at RIT, I teach introductory programming and problem solving to our undergraduate game design & development students and work with our graduate students on learning to evaluate and improve their game development processes.

I also act as a process advisor for all of our masters capstone project teams.

In short, I'm a software engineer through and through. My primary objective is to give my students the technical and process improvement foundations they'll need throughout their careers.

But before I talk more about how I work with these teams – especially those in the 3 formal classes, let's begin by stating the obvious…

Team projects are great!
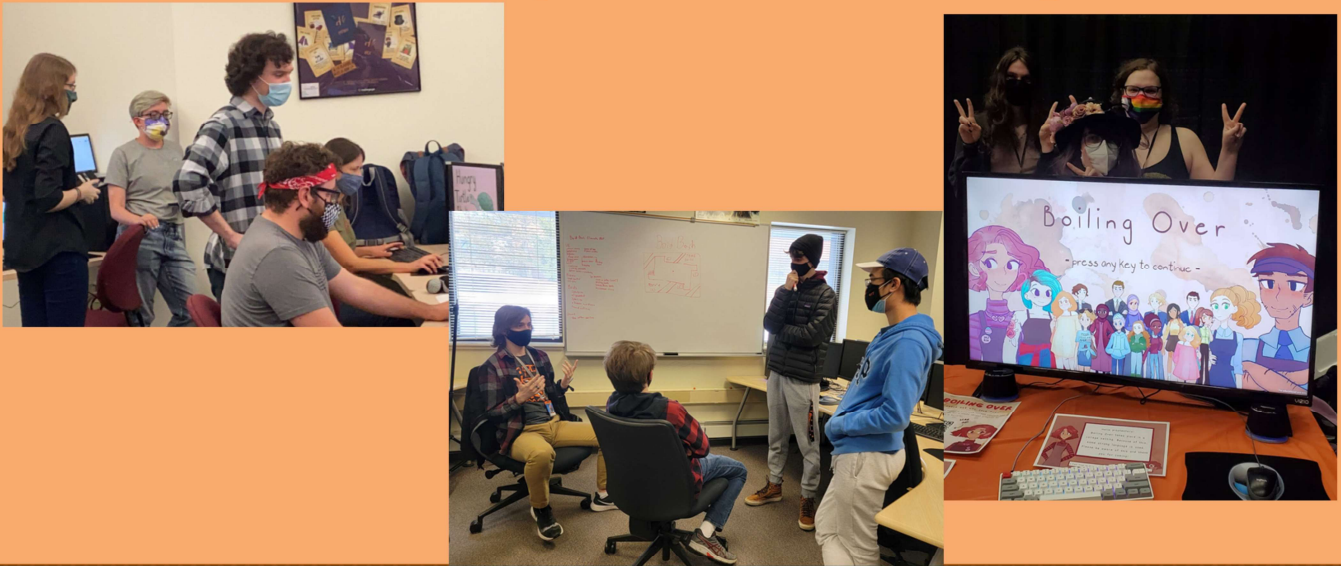
Having students work in teams is great.

Teamwork has been a cornerstone of computing and game development education for decades.

It allows students to:

NEXT

- Explore a variety of communication and production techniques at a much larger scale than they could do individually

NEXT
- Build relationships with their peers that will turn into important professional connections

NEXT
- And kickstart passion projects that can turn into portfolio

pieces and published games.

However, we all know that some teams are successful despite the environment. And I'm sure we know of many more that could have been successful if the team hadn't imploded.

NEXT

- More often than not, teams that I worked with early on would get the work done but be miserable due to crunch.

NEXT

- Having bigger teams didn't help. It often led to work imbalance, miscommunication, and general chaos.

NEXT

- Even when students meant well, attempts to "lighten" the mood would often go too far.

NEXT

- Many would simply give up and decide they have to suffer through and hope for better luck next time.

NEXT

- And some grew to even dread what should have been the most rewarding part of their education.

It's easy, especially knowing the pressures on our students, to assume we simply have to inspire them to work harder, be more "passionate", and "live up to their potential".

But these weren't isolated complaints and they were consistent regardless of course type or experience level.

High-achieving, passionate, successful students were suffering through teamwork.

With such universal issues, I had to ask myself: *Is this truly a "people" problem, or is something else getting the way?*

To answer that, I fell back on my software engineering training to reframe the problem.

Reframing the problem

People + Process → Product
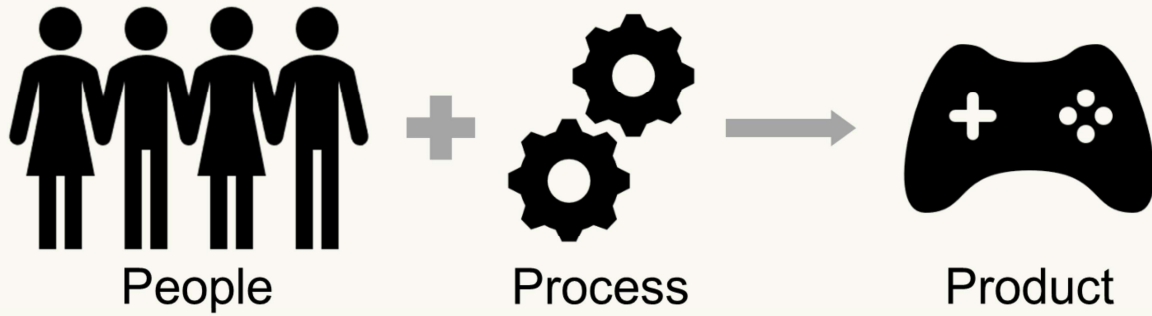
In software engineering, we define "projects"

NEXT

as **people**

NEXT

leveraging a **process**

NEXT

to build a **product**.
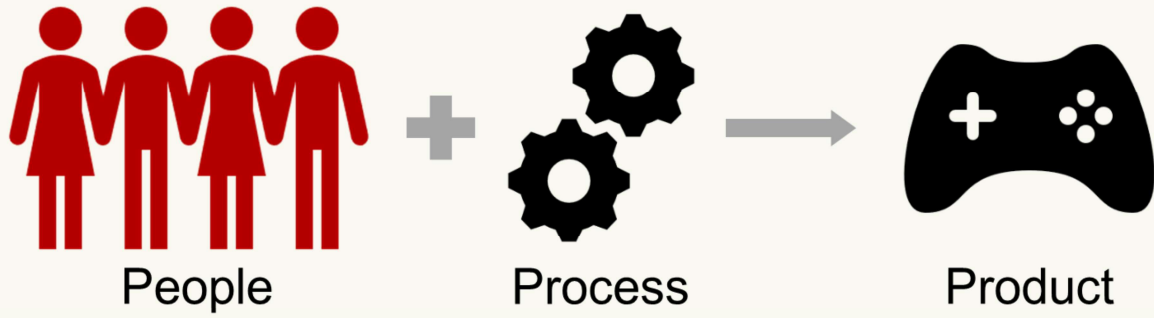
Instead of assuming that people are the weak point in a project,

Reframing the problem

People + Process → Product
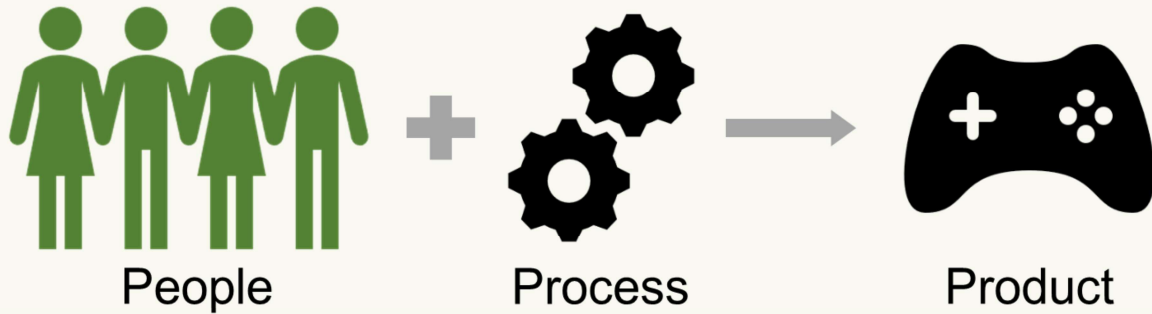
We make them the focal point.

Yes, individual skill and personal discipline are important.

But the process and work environment should HELP, not constrain the team.

And, while it required a little soul searching to admit that my students' challenges were likely related to my course structure, PROCESS was something I could control.

My Process

Regular, open communications vs. status reports

24 hours

Sprint 2-4 weeks

Growth via retrospectives

Product Backlog

Sprint Backlog

Clear expectations & sprint goals

Product Increment

Mountain Goat Software, LLC

From a process perspective, I have students use a Scrum-based approach.

Most of my peers at RIT follow a similar approach (in game design and in other domains).

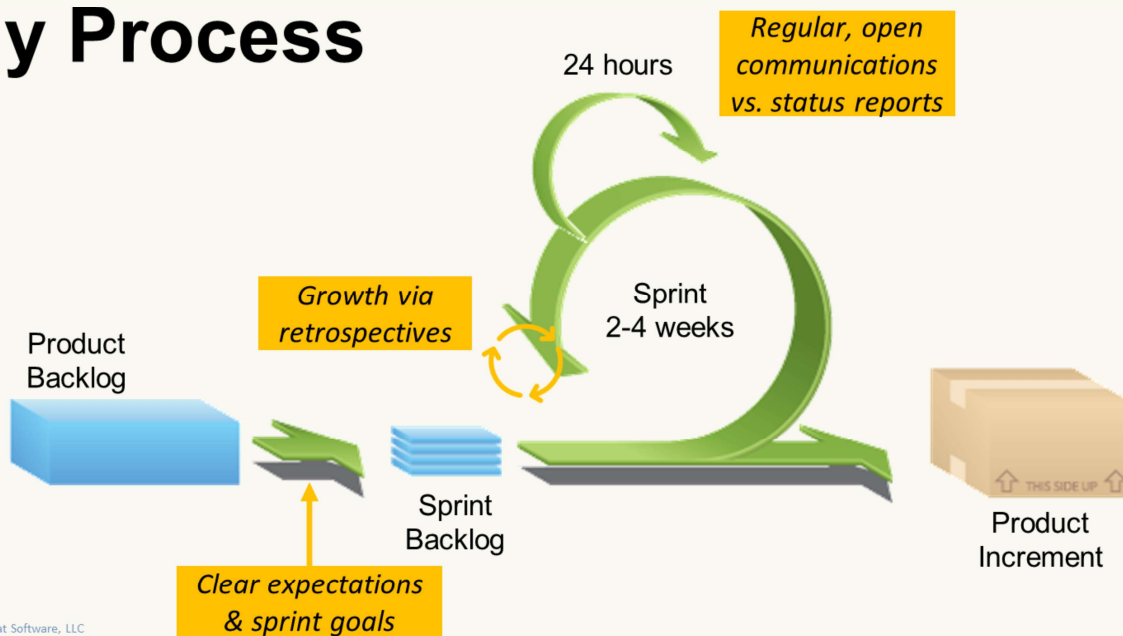It lets us keep teams in **sync**, gives us **transparency** into their progress, and allows for frequent **feedback**.

It works – and it isn't all that novel.

However, in order to result in **healthy, inclusive environments** where everyone can contribute to the best of their ability, Scrum requires more than a set of steps and ceremonies to follow. Teams need:

NEXT

A feasible and **relevant** target **scope** guided by clear expectations and **sprint goals**

NEXT

Open, substantive **communications** instead of quick status reports. It's not about how much work you got done. It's about how are you doing the work and how are you doing the work together.

NEXT

And then the growth of the project as a whole, requires frequent reflection. Games require play testing and refinement. Processes do too - at individual and team levels.

Scope, open communications, and iterative growth: these weren't people problems.

These were things I could actually do something about!

**Relevant
Scope** ──────▶ **Define success in the
context of the course**

Open
Communications

Growth

Let's start with scope. It's a scary word even for seasoned
professionals. For students, it's flat out terrifying.

But it doesn't have to be.

Simply put, scope is the amount of work we need to do to achieve
our goals. Scope is something WE define.

But to do that, we need goals.

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For students, that means defining "success" in a way that
encourages reasonable expectations so they avoid crunch and
irrelevant work.

Course Success == **Having fun**
Learning something

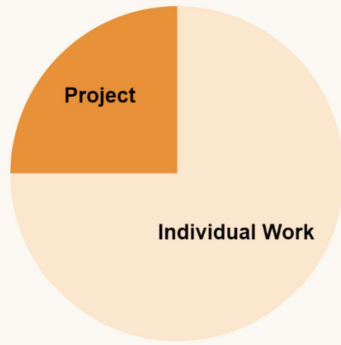*All project activities, assignments, & grades are designed to reinforce these two goals!*

In ALL of my classes, success means having fun while learning and applying new skills!

Exactly which skills and how they practice them varies by course, but those are ALWAYS my fundamental goals.
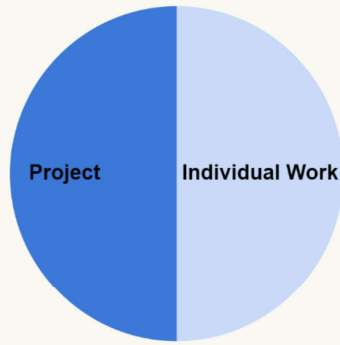
And I BACK that up with how the course is structured.

Projects need to support, NOT distract from the course objectives.

The weight of the project grade varies course by course based on the learning objectives of the course.

NEXT

My 1st year undergraduates need to spend a lot of time individually studying and practicing new concepts. The team project is an important element so they start learning to apply skills at scale, but it isn't the focal point. It's only worth about a quarter of their final grade and I remind them regularly that their individual work is the priority. If that means the implemented scope needs to be small. That's fine. They don't need a lot of content & polish in order to demonstrate that they can apply basic algorithms in a game development context.

NEXT

For my graduate students studying production and process theory,

the project plays a larger role since they are expected to leverage the course concepts to help the project stay on track. Still, their individual reflections and theory work are just as important.

NEXT

In production studios, the project is THE primary objective. Students spend all semester focused on making demonstrable progress on a game of their own design. As a result, the project is 90% of their course grade. (The other 10% is a bit of cross-team discussion and reflection.)
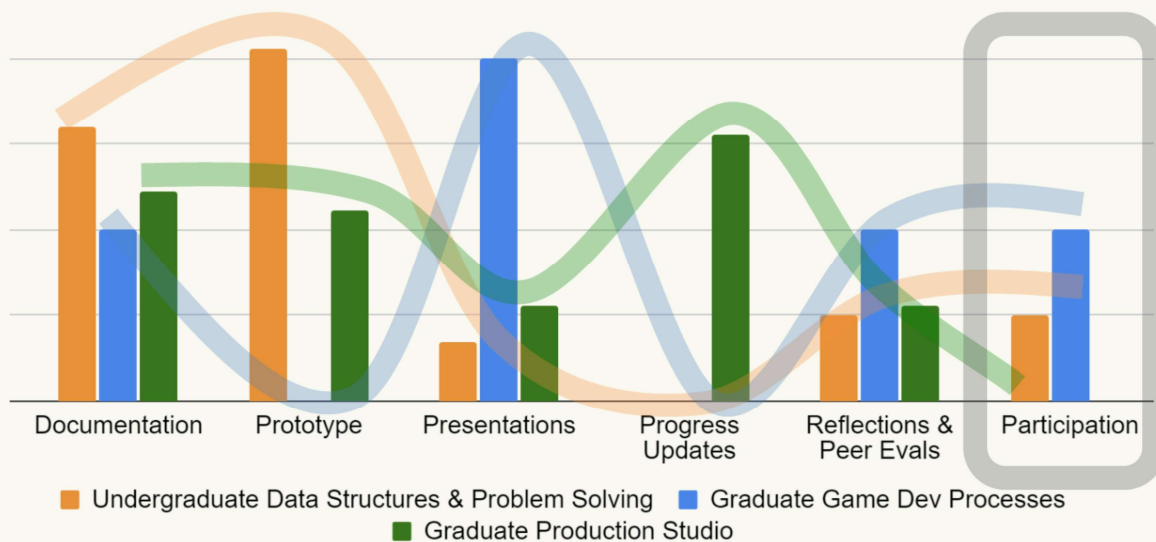
Within the project, grades on specific deliverables and activities are also weighted based on the course objectives & expectations.

NEXT

For my 1st year undergraduates (orange here) the grading emphasis is on the prototype itself and the technical aspects of the documentation. It is, after all, a programming class.

NEXT

My production & process theory graduate students' grades (the blue columns) focus on their reflections and ability to articulate their work.

NEXT

In my graduate production studio, the project grade distribution (in green) is a slightly more even spread across most activities and artifacts.

NEXT

Finally, participation grades.

These can be tricky. For the most part, it's a small element to encourage active engagement.

There is no participation element in my production studio since it's an upper level elective where engagement, honestly, is rarely a problem. Like all my classes, students know that I reserve the right to alter an individual grade on any team deliverable in extreme circumstances, but it doesn't happen often.

In fact, the more I make the project objectives clear and encourage students to have fun with the project, the less engagement has become an issue in all my courses. I hope to eventually not need to bother with participation grades at all.
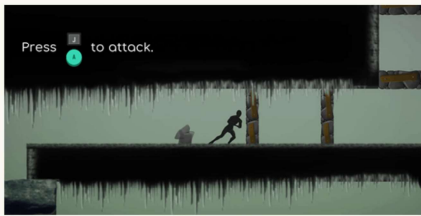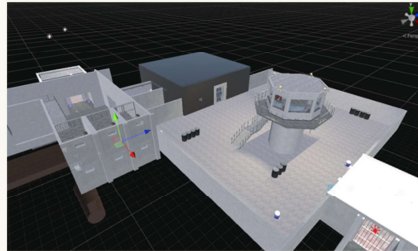
By taking the pressure off and asking them to focus on a core experience that demonstrates course concepts, teams stop trying "put everything they have ever learned!" into a single game.

Instead, they deliver tight, cohesive vertical slices that show their potential -- what they COULD do with what they are learning if this weren't a course project with limited time and resources.

But remember, learning while making great games was only part of the goal.

I want my students to have fun!
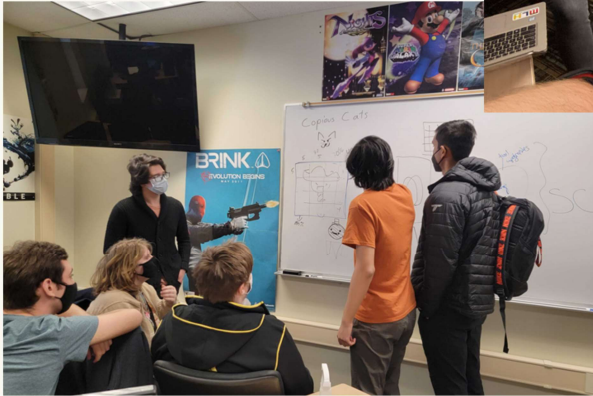
It always surprises students a bit when I tell them that having fun should be a priority.

But I mean it. And I emphasize it regularly.

Working together should be fun!

Showing off their work should be fun!

And it's important for their personal well being that they make time to have fun outside of class as well.

And while I can't "MAKE" them have fun, I can create an environment that values and encourages it.

We share how we have fun AND what gets in the way!

5:00 PM **680 Weekly Check-in** WORKFLOW Friday, March 11th 5:00:10 PM
@team_leads Please post your weekly check-in sometime between now and Sunday night

Do not respond under this thread! Instead, create a new post with:
- At least 1 thing your team accomplished this week that they're proud of
- 1 concern that's a high priority to address next week
- Something your team had fun working on this week (and if you can't think of anything you all agree was fun, what was happening that got in the way of you having fun?)

@students - Watch for updates and feel free to reply in the thread for other team's posts with questions, comments, suggestions, etc. :)

"Field trip" to research game domains
We were up all night dealing with git merge issues
Playtesting with friends

We ALL have an exam
Celebrated a birthday the same day as our playtest!
FINALLY solved this bug together!

In my undergraduate courses, I do this live in class via casual discussions + Slack channels for teams to share resource links and games to try.

NEXT

In my graduate courses, teams post a weekly check in to share highlights with each other about their accomplishments and concerns, but also lessons learned and how they've been having fun.

NEXT

Of all of this, asking teams about what was fun, or what got in the way of being fun has been the most helpful.

NEXT

It's often things like team outings, extra playtesting, and celebrating birthdays.

NEXT

But sharing what is fun also encourages them to be open about sources of stress.

In short: "Are you having fun?" is my early warning system. It lets me offer early and targeted support (and even make course changes if it's a universal issue).

However, these check-ins – especially openly sharing what they are enjoying and their concerns – are only possible with open, substantive communications.

Relevant Scope ──────▶ Define success in the context of the course

Open Communications ──────▶ **Teams establish shared values**

Growth

But there's no silver bullet here. I can make suggestions, but in the end, every team and every individual will need something different.

For example, some students thrive in synchronous, high-interaction discussions.

Others will need time to formulate their thoughts before bringing them to the team.

Teams are more than just groups of students.

NEXT

To have truly open and honest communications, each team needs to proactively get to know each other and establish their own shared values and norms.

I can't do this for them – but I can set them up for success.

Strong teams embrace their differences

Name & Pronouns *+ phonetic spelling*	Areas of interest/expertise	Background & Notes
Erika Mesh, she/her (Instructor) *AIR-uh-kah MESH*	Process improvement, project communications & management, OO development	BS & MS Software Engineering Lecturer, IGM, RIT https://esmesh.github.io/
Kyle Weekley, he/him (Teaching Assistant) *KYE-l WEE-klee*	Communication, mid-process reflection, and improvement. Game design.	2nd-year GDD BS/MS student, 5th-year overall Portfolio
…	…	…

Game development is by nature interdisciplinary. Our teams NEED a diverse set of skills and perspectives.

I can tell students that every day. And hearing it helps, a bit.

What actually makes a difference is backing up the sentiment with tangible & safe ways to learn about each other.

So to start, from day 1, the TAs and I model that who we are as individuals, with individual areas of expertise, preferences, and personalities – This matters!

Individual Team Formation Reflections

Share your individual team formation reflections with each other (or as much as you are comfortable sharing).

- What styles of communication are most effective for you?

- How do you prefer to handle conflict and how does this vary based on the topic/type of conflict?

- What would it take for you to feel included in the team?

- What will you do to help others feel included?

- What other questions do you think will be important for individuals to consider when organizing their teams?

- Is there anything else you want the team to know?

In addition, in all my classes, introductions are more than "Hello my name is…" -

We talk opening about communication styles, embracing and resolving conflict, what makes us feel included and what other topics are important to us as individuals when we're working on a team.

This is a difficult exercise for many (and would be for us as well – especially with people we don't know or are just getting to know).

So it's essential that it be framed in the context of openness and respect. ANY response is valid.

The point isn't to identify good or bad team dynamics. It's to set the tone, from day one, that open conversations about what we need as individuals are not only acceptable, but essential!

Each team establishes how to succeed TOGETHER

Don't write messy code!

Meet after class on Mondays

Check-in even if other classes prevented progress

Discord for quick updates and co-working

No ghosting!!!

Everyone will get heard, and let everyone be heard.

Respect one another (and their ideas)

Recognize each other's signs of frustration

Help each other!

Don't suffer in silence

As a result, each team starts thinking about what "communication" means beyond specific tools and meeting agendas.

NEXT

Many are things that I could simply told them to do: "Set a meeting time, follow coding standards, keep in touch, etc." – but there's value in letting teams come to this point and articulate these values in their own words.

And based on these conversations, many go further.

NEXT

They talk about how to ensure everyone has a voice.

NEXT

And acknowledge that everything won't always go smoothly

Shared values == Balanced, healthy teams!

"We coordinated extremely well, **made sure to check with each other** on aspects of the project we were uncertain about, and **mixed our efforts together** to finish the project."

"**This was my first game created with an actual team and it was such an amazing experience.** Everybody knew exactly what it was that they should be working on and informed the team when a task was completed."

"I disappeared from communications on a lot of my projects due to stress and sensory overload....While the act of disappearing is certainly a negative thing, **that moment of revaluation that *'We're all working to a common goal. They're not going to hate me. We all want to succeed. We're a team.'* was one of the most helpful things for me in the long run that I experienced this school year.**"

Once I started doing this,

NEXT

I saw most teams start to question assumptions of what it meant to be a "good team member". Instead of all trying to conform to an unattainable ideal, they take the time to get to know each other and play to each other's strengths.

NEXT

They also proactively build trust by discussing their individual needs and then that lets them work asynchronously – because they trust each other to do the work and then come back to seek the team's opinion and help as needed.

NEXT

When they struggle, they learn that the team is there to

support, not judge them.

And they do struggle sometimes. That's normal. The key is leveraging these initial shared values to create an environment where challenges and conflict are seen as opportunities for growth.

Relevant Scope ———→ Define success in the context of the course

Open Communications ———→ Teams establish shared values

Growth ———→ **Facilitate actionable critique & growth**

I'll spare us the endless inspirational quotes. We also know personal growth is essential. And HARD.

Like most educators, I leverage individual reflections and peer evaluations to give me insight into team dynamics & individual strengths and weaknesses.

NEXT

More importantly, I've adapted these tools to help the students learn how to give actionable self & peer critique so they can OWN their own growth.

Team Critique

Rate your team *as a whole* in each area. *

	Needs Improvement	Satisfactory	Exceeds Expectations
Communication	○	○	○
Organization	○	○	○
Prioritization	○	○	○
Ability to incorporate feedback	○	○	○
Effort	○	○	○
Work Quality	○	○	○

First, start by writing a few se
you believe that your team is
Don't overthink this. Write the first thi
a way to note what is most important
answering other questions later).

Your answer

Too often, I've had students tell me "I just got a bad team this time." or "We just don't work well together."

NEXT

In order to encourage them to dig a little deeper, I open all reflections by asking students to think about how the project is going overall and WHY they feel this is happening.

If things are going well, they have tangible lessons learned to help them recreate this success in the future. If not, they have something actionable to change. (In effect, I'm asking them to do a bit of root cause analysis.)

NEXT

While closed form questions offer less insight because we all have different definitions of "satisfactory", I also include some general questions to help identify major trends and areas where extra resources and support may be helpful.

Individual Critique: *Framing*

"I don't want to get anyone in trouble"

"Who am I to judge someone else?"

"I don't want to sound like I have an ego."

As with all team/peer evaluations, the goal is constructive reflection - NOT to rank, criticize, compete, etc. (yourself or others).

Learning to give and receive constructive feedback is an essential professional skill and this class is an opportunity to practice it.
While I reserve the right to adjust an individual's grade on a team assignment in the event of clear issues, I will never do this based solely on peer evaluations. (I.e. issues have to be supported by my observations in class & other project artifacts.)

Encouraging honest, actionable individual critique is a lot harder.

"Teams" are easy to comment on. People aren't.

NEXT

People have feelings.

And we don't want to seem as if we DON'T have feelings when giving feedback.

In every class, before our first round peer feedback, we have a pretty candid discussion about these concerns.

NEXT

AND that individual critique is always formative.

I NEVER use peer feedback to punish anyone. They should never use peer feedback to punish anyone.

The goal is growth.

Individual Critique

This team member
has helped to create a positive and inclusive environment
that allows everyone to contribute to the best of their ability.

This team member consistently met or exceeded all expectations for
individual progress and contributions
made outside of class and team meetings.

This team member consistently met or exceeded all expectations for
preparedness for and participation in class and team meetings.

To help set the tone and goals of individual critique, I start by having students consider how strongly they agree/disagree with a few statements.

Like the team focused closed form questions, these are helpful for noticing major trends, but since we all define "strongly agree" a bit differently, I don't base much on them.

It's not the response that matters, it's about picking up major trends, and, more importantly, using these statements as a way to define a "good" teammate as someone who:

- ACTIVELY helps create a positive and inclusive environment

- Makes value added, independent contributions

- And is a prepared, engaged member of the team during synchronous work

And once they are thinking of a "good teammate" as more than someone that churns out a lot of work, they're in a place to write

constructive feedback.

Written Critique

Provide written feedback for each team member (including yourself!)

For each team member, discuss:
- *Their key contributions this past sprint*
- *Areas in which they could improve*
- *How the team can help support them in their current role or in making improvements to their contributions*

This feedback WILL be provided anonymously, but verbatim, to your peers! (I.e. in one block of text without names of the authors).

As such, I expect you to put significant time and effort writing thoughtful, constructive feedback for your peers.

Constructive, actionable verbal feedback is the most effective tool to support personal growth.

It's also the hardest to write – about each other and ourselves.

In order to get past the "Who am I to judge?" and "I don't want to get them in trouble." concerns while also avoiding complete rants, I remind students that the goal is an assessment of performance, not character.

And I back that up with clear instructions to contextualize their feedback by focusing on key contributions, specific areas of improvement, AND the team's role in supporting individual growth.

Of course, this is easier said than done.

Written Critique

Shiro is my cat. He steals old toys from the basement and carries them around yowling.

We think he's bored, but we can't let him play with the dog unsupervised.

We should set aside time for them to play (and clean the basement).

To help students become more comfortable writing constructive peer feedback, I introduce it with the help of a pretty silly example *(because things are always less scary when we're being silly)*

NEXT

In our base example, we discuss a cursory peer evaluation of Shiro.

Shiro is an okay team member.

He sometimes does things no one understands, but I have no major complaints.

Something is clearly not going well, but if I pass this along to Shiro, he'd probably just ignore the feedback. And as a professor, this doesn't really tell me anything useful either.

But, if we dig a little deeper, and ask for rationale for each statement + a little context…

NEXT

We find out that Shiro is my cat. And he's bored and thus entertaining himself with old toys from the basement.

The extra context helps, but for true growth to come out of this, we need actionable feedback.

NEXT

In this case, the behavior is frustrating, but not entirely Shiro's fault. The team (my family and I) bear some responsibility here. Shiro would probably stop being so frustrating if we made a few changes to our schedule & cleaned up the basement.

Of course, team dynamics are a lot more complicated than my issues with my cat.

But it's a concrete, and engaging example of how context adds meaning to a critique and it demonstrates a common problem:
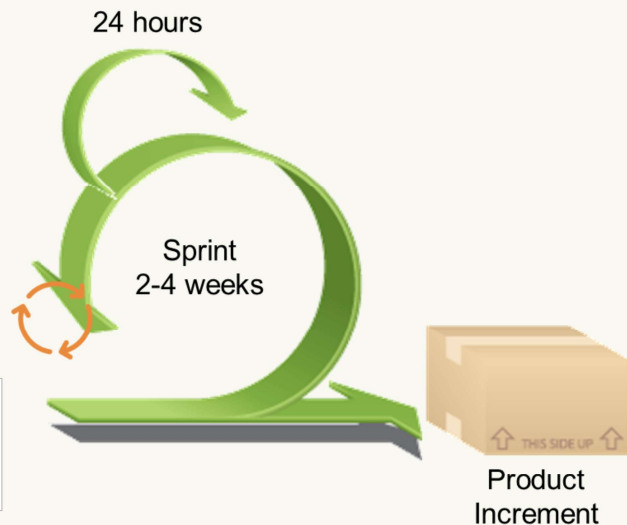
Sometimes changes in individual performance require team support.

Projects & people grow together

"We moved our meetings a bit later to let those that work nights sleep in."

"Asking everyone to come with notes prepared helps make sure we all have a voice."

"I'm going to make sure I comment my code better so that others can help me."

24 hours

Sprint
2-4 weeks

Product
Increment

Once I added "how can the team help" to the written feedback prompt, generic complaints about not doing enough work stopped almost completely.

Students immediately started to think about *why* their peers may not be contributing. They noted conflicting work schedules, concerns about each other's well-being, communication problems, and work imbalances within the team.

And, even when there's one student that has done minimal work, and it happens sometimes.

The peer eval comments are things like "we should really make sure they are okay and help them get back up to speed" instead of "this person did nothing and I never want to work with them again".

And with individual reflections & critique with each major iteration, the teams are given multiple opportunities to improve themselves AND to improve how they support each other.

All Together

Define success in the context of the course
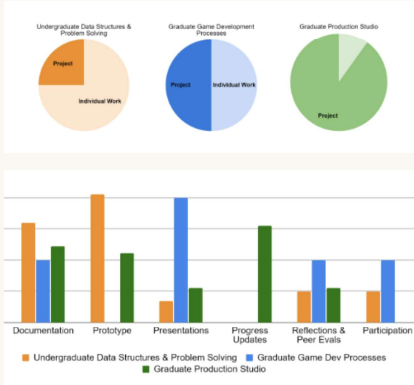
**Establish shared values by embracing differences**

Facilitate actionable critique & growth

Put together, more often than not, even teams that struggle are more proactive about working through problems.

From small initial prototypes by new undergraduates to multi-year passion projects that started in class, I'm seeing teams recognize that when they have clear and reasonable goals, put people first, and are open to growth & feedback,
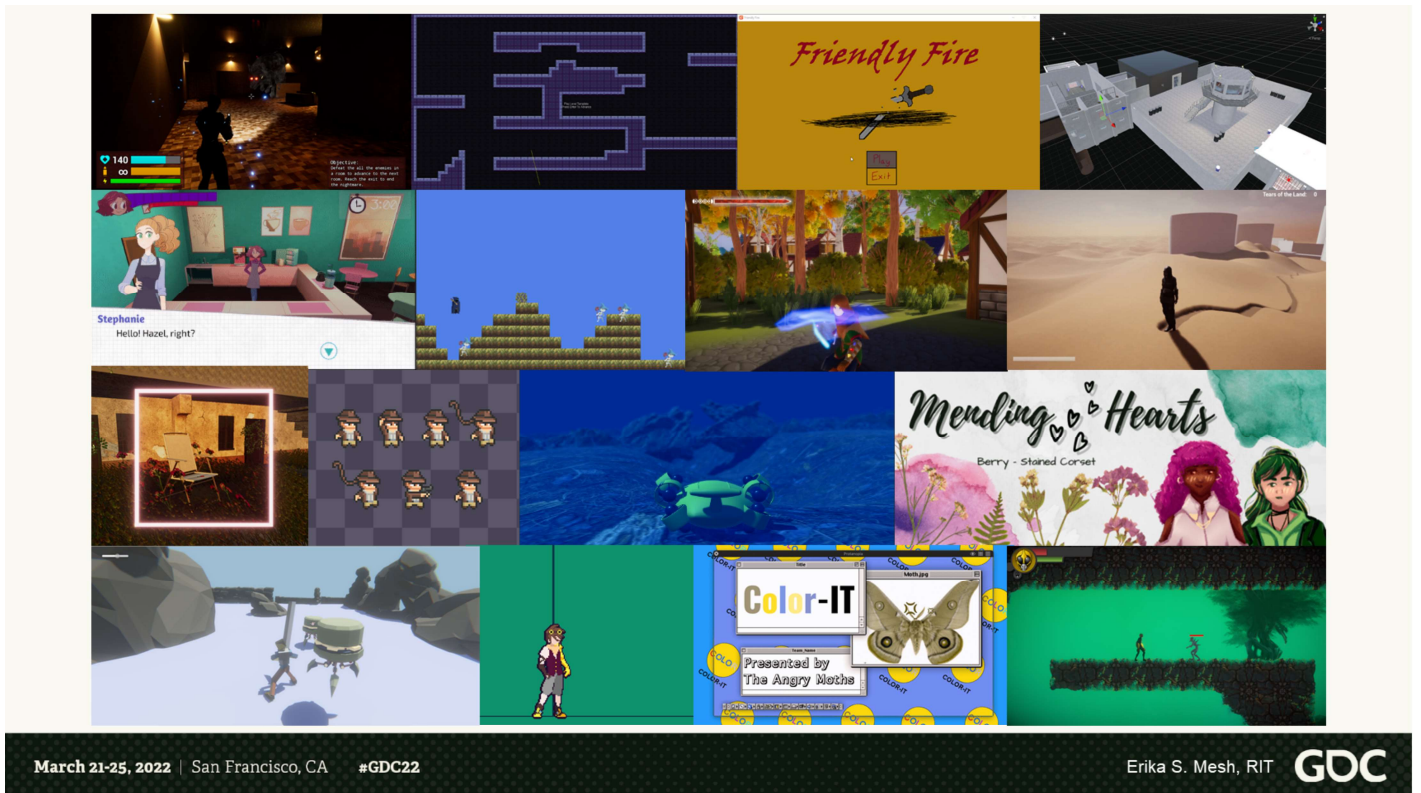
they can make better games and they ENJOY the process of making games.

Now, all of this isn't without some challenges.

I've had a lot of success with these approaches, but they aren't perfect.

I'm still constantly refining grading weights and how I frame exercises to suit a specific courses or cohorts of students.

Like our projects, our strategies for creating productive, healthy teams have to improve iteratively. Everything that I've discussed today is the result of 4 years worth of reflection and gradual adjustments in my courses.

Doing this also requires transparency and modeling behaviors - by

both myself and my teaching assistants.

Which takes commitment, practice, and tailoring to suit your course and personal teaching style (because I suspect not everyone wants to talk about my cat).

Acknowledgements

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- Mililani Rosare, RIT BS NMID '22

J. Scott Hawker, Ph.D., Software Engineering, RIT

& a LOT of RIT-IGME 106, 601, 680, & capstone students!

#GDC22

And, like any process improvement activity, none of this would have been possible without the support and input from my colleagues, teaching & research assistants, and, most of all, my students.

All of the screenshots and photos that you've seen today are my current students and their current, in progress, projects.

It's been a privilege speaking with you today. You can find more information about me, my teaching, and my students via my website.

When you've got some time, I'd also appreciate it if everyone could complete the session feedback survey.

I'm happy to chat for a bit now with the time we have left. Please also feel free to connect via the GDC event app if you'd like to talk more later this week.