

Not One or the Other: How to Help Your Direct Reports Develop New Programming Skills While Achieving Your Department Goals

Jessica Higgins Ph.D.

Atorus Research

Growth Mindset

Growth mindset – it's for more than just school children!

Employees who have a growth mindset are happier and more productive <https://doi.org/10.1037/apl0001021>

Happiness at work is good!

New Skills - Employee

Most programmers want to learn new skills, but struggle with

The time needed to
learn the skills

No plan or path forward
to use those skills

Being a novice at
something is scary



New skills are good – they push innovation in thought and
practice forward

New Skills - Employer

Employer Concerns

New skills aren't strong enough for project work

The new skillset doesn't apply to current work

An employee with new skills might leave



But we want innovative, forward thinking employees with a growth mindset...

The Useful Internal Project

For QC

For internal
record keeping

As an internal
demo

As a proof of
concept

To show that
your group is
forward thinking

A Case Study

An advanced R programmer has been learning javascript and wants to learn react.js a javascript library useful for making user interfaces

There are no react.js projects currently in our project list (but there will be, this is a useful skill)

React.js is hard! There is a large learning curve to be proficient

The Useful Internal Project - Client Tracker



In our consulting department we work with a many of clients with a variety of contracts



Information was coming into an Excel sheet, but it was hard to filter, hard to keep track of dates etc.



I wanted a clean easy to view dashboard where I could easily see what contracts were ending soon

The Useful Internal Project - Client Tracker



I made a list of requirements and prioritized them



I gave realistic time expectations



I provided resources needed



I put the onus on the employee to schedule check in meetings to review progress

Results



Analytics Engineering Dashboard

Still Have Time

Date Has Passed

About To Expire

Start Date	End Date ↑	Client	PCN	Lead	Change Order	Term (Months)	SOW Status	Total Value	Target Burn Rate	Passthrough Amo...	Status
1-Nov-22	✗ 1-Apr-23	Client 6	C6	Jessica Higgins		5		\$50,000.00	\$10,000.00		ACTIVE
1-Apr-22	✗ 30-Mar-23	Client 8	C8	Jessica Higgins		12		\$100,000.00	\$8,333.00		ACTIVE
1-Jan-23	✓ 4-Jun-23	Client 1	C1	Jessica Higgins		5.1		\$500,000.00	\$98,039.00		ACTIVE
1-Oct-22	✓ 1-Oct-23	Client 3	C3	Jessica Higgins		12		\$150,000.00	\$12,500.00		ACTIVE
1-Jan-23	✓ 31-Dec-23	Client 4	C4	Jessica Higgins		12		\$325,000.00	\$27,083.00		ACTIVE
22-Jan-23	✓ 31-Dec-23	Client 5	C5	Jessica Higgins		11.3		\$550,000.00	\$48,673.00		ACTIVE
1-Aug-22	✓ 1-Jun-23	Client 9	C9	Jessica Higgins		10		\$150,000.00	\$15,000.00		ACTIVE
27-Aug-21	— 1-Mar-22	Client 2	C2	Jessica Higgins		6.1		\$60,000.00	\$9,836.00		EXPIRED
1-Mar-22	— 1-Sep-22	Client 2	C2	Jessica Higgins		6		\$60,000.00	\$10,000.00		EXPIRED
1-Jan-21	— 31-Dec-22	Client 7	C7	Jessica Higgins		24		\$800,000.00	\$33,333.00		EXPIRED
1-Jan-21	— 31-Dec-22	Client 10	C10	Jessica Higgins		24		\$400,000.00	\$16,667.00		EXPIRED



Analytics Engineering Dashboard

Still Have Time

Date Has Passed

About To Expire

Start Date	End Date ↑	Client	PCN	Lead	Change Order	Term (Months)	SOW Status	Total Value	Target Burn Rate	Passthrough Amo...	Status
1-Nov-22	✗ 1-Apr-23	Client 6	C6	Jessica Higgins		5		\$50,000.00	\$10,000.00		ACTIVE
1-Apr-22	✗ 30-Mar-23	Client 8	C8	Jessica Higgins		12		\$100,000.00	\$8,333.00		ACTIVE



Analytics Engineering Dashboard

Still Have Time

Date Has Passed

About To Expire

Start Date	End Date ↑	Client	PCN	Lead	Change Order	Term (Months)	SOW Status	Total Value	Target Burn Rate	Passthrough Amo...	Status
1-Jan-23	✓ 4-Jun-23	Client 1	C1	Jessica Higgins		5.1		\$500,000.00	\$98,039.00		ACTIVE
1-Oct-22	✓ 1-Oct-23	Client 3	C3	Jessica Higgins		12		\$150,000.00	\$12,500.00		ACTIVE
1-Jan-23	✓ 31-Dec-23	Client 4	C4	Jessica Higgins		12		\$325,000.00	\$27,083.00		ACTIVE
22-Jan-23	✓ 31-Dec-23	Client 5	C5	Jessica Higgins		11.3		\$550,000.00	\$48,673.00		ACTIVE
1-Aug-22	✓ 1-Jun-23	Client 9	C9	Jessica Higgins		10		\$150,000.00	\$15,000.00		ACTIVE

Win Win!

The employee got to practice learning react.js

- They conferred with others
- They reviewed online materials

I got a useful dashboard

- It helps keep our department organized
- It can manage access to share or not with others

The employee is happy, I am happy!

- The employee is excited and invested in the department

Conclusions



As a bonus this project spurred interests in another employee who wants to increase their skills in database management



Collaboration and mutual investment into the work



Excitement is contagious