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(Physicists) share a common distrust of management as a subject, believing it to be unscientific at best and at worst a collection of HR political correctness designed to get between them and their science.

This is the story of our attempts to engage a group of sceptical scientists in the subject of management. It is an experience that has established a new process for learning design that we now place at the heart of every project.

The Problem

The Institute of Physics is a large scientific membership body. The members are diverse and dispersed, but they share a common distrust of management as a subject, believing it to be unscientific at best and at worst a collection of HR political correctness designed to get between them and their science.

IOP described to us a situation where managers were selected not because they appeared to have any natural aptitude, or because they had expressed any enthusiasm for the role, but because they were the most senior person on the team. They tended not to engage with management enthusiastically and as a result were often unsuccessful in the role. This manifests itself in few technical people progressing into senior roles and ultimately in scientific organisations having insufficient specialist scientific representation at Board level.

The challenge

The IOP wanted to help their members make a more effective transition into management. They asked us to research, propose and develop a solution. The approach we took came pragmatically out of the needs of the project, but has now become our standard approach to learning design.

The analysis

We started by analysing three things:

- The objectives of the project
- The nature of the content required
- The profile of the learners.

Engaging Sceptical Learners: The science of learning design

From this we were able to develop a learning design for the project itself and a set of rules for the detailed development of the learning materials.

Objectives

Let's look first at what we were able to find out. By interviewing managers and policy makers we were able to draw out these objectives:

- To create a model of management that will be attractive and engaging to physicists
- To provide an introduction to the basic concepts of management for physicists
- To engage the attention of a group of sceptical learners
- To change attitudes to management as a discipline
- To stimulate young scientific managers to create a development plan for their own personal growth as managers.

Perhaps the most important and at the same time most challenging of these were the third and fourth, involving a real change in attitudes - persuading a group of sceptical learners to engage positively with something they found culturally suspect. From these objectives we identified some critical success factors:

1. The content had to be robust or we would be shot down
2. We were looking for a new presentation of existing ideas, not new ideas or theories
3. The key outcome was about changing attitudes rather than knowledge
4. These learners were likely to respond better if they could see that by engaging with our material they would end up with something of real practical value.



	Forum Corporation	University of Gloucestershire	Right Track	R2	CIPD	Nelson Croom
	International Corporate trainer	ILM Curriculum	UK Training Company - large corporate	UK Training Company - smaller organisations	Professional Association	Online Learning Publisher
	Leadership Fundamental Skills	Intro Cert in 1st line Management	Management Collection	New to Management programme	CIPD 1st 100 days	Professional Development Portfolio
Alignment/objectives	✓	✓	✓	✓	✓	✓
Coaching	✓		✓	✓	✓	✓
Recruitment	✓		✓			✓
Motivation	✓	✓	✓	✓	✓	✓
Workload	✓		✓	✓	✓	✓
Teams	✓	✓	✓	✓	✓	
Communication		✓	✓			✓
Delegation		✓	✓	✓	✓	✓
Problem Solving		✓	✓			✓
Managing Difficult People		✓		✓	✓	✓
Becoming a Manager		✓		✓	✓	
Finance for non Financial Managers			✓	✓	✓	✓
Project Management			✓			✓
Overview of Management		✓	✓	✓	✓	
Networking				✓	✓	✓

They had no trouble agreeing that good teams should be productive, should be lined up with the organisation's objectives and could only operate within the right culture. The problem was that they didn't know what to do with this knowledge. You can't come in on a Tuesday and announce "Today I will tackle culture."

Content

Next we looked at the content. We researched the leadership and management curricula of a range of providers (see above).

The Forum Corporation is a major international consultancy in organisational development. They work with global brands "developing the leaders of tomorrow". They are high end and looking at their website you'd be hard pressed to work out that they deliver international training programmes.

At the other end of the spectrum, the University of Gloucestershire was selected as a public sector deliverer of the ILM Curriculum for the Introductory Certificate in First Line Management.

Between the two, Righttrack is a UK training company working with larger companies and local authorities and R2 specialises in the SME sector. We also looked at the CIPD "1st 100 days in Management" offering and at our own provision.

What struck us was the remarkable similarity between the offerings of these disparate organisations: everyone teaches pretty much the same stuff.

From the analysis we identified 12 core topics that were common to everyone and grouped them under four headings as shown in this diagram.

We also identified three key themes that, although not tackled directly, were repeatedly referred to by each of the providers as the purpose of management.

Productivity: Making the team as effective as possible at doing what they do.

Alignment: The extent to which what they actually do on a day to day basis lines up with what the organisation is trying to achieve.

Culture: The creation of an environment conducive to effective work.

Putting these together gave us the first clue to what might be frustrating these reluctant managers. They all seemed to get the idea of the purpose of management. They had no trouble agreeing that good teams should be productive, should be lined up with the organisation's objectives and could only operate within the right culture. The problem was that they didn't know what to do with this knowledge. You can't come in on a Tuesday and announce "today I will tackle culture."





They found the idea of face-to-face sessions focused on soft skills, with the inevitable group discussions and role plays, an unpleasant prospect.

It seemed to us that we needed to make more explicit what each of the providers clearly realise but aren't actually saying: that the outputs of good management are critical, but they are not things you can tackle directly. You need instead to focus on what you can do that will have an impact on those outputs.

This was how we arrived at our model, with three management outputs and three groups of management inputs – the language chosen specifically to appeal to a scientific audience. We christened it the **PAC Model of Management**. The shaded blocks denote the impact that the management inputs have on each of the management outputs.

		MANAGEMENT OUTPUTS		
		Productivity	Alignment	Culture
PERSONAL EFFECTIVENESS	Managing workload	■	■	■
	Delegation	■		■
	Networking	■		■
	Decision making	■	■	■
PEOPLE MANAGEMENT	Leadership	■	■	■
	Coaching	■	■	■
	Team management	■	■	■
	Recruitment and selection	■		■
KNOWLEDGE AND SYSTEMS	Performance appraisals	■	■	■
	Law and compliance	■		■
	Business strategy	■	■	■
	Finance	■	■	■

Learners

In an attempt to understand the learners' and their likes and dislikes, we did three things:

1. We asked the project team at the IOP to describe them
2. We facilitated a focus group session with representative learners
3. We asked IOP members to complete an online learning styles diagnostic.

This is what we found out. Firstly they are scientists! This means that they are analytical. They want proof if they are going to believe new ideas and they want to see evidence of a scientific approach.

Research shows that there is an unusually high instance of mild autism among scientists. This has a number of implications but one seemed to be that they found the idea of face-to-face sessions focused on soft skills, with the inevitable group discussions and role plays, an unpleasant prospect.

They don't read much – few even taking a daily paper. They like lists, diagrams and flow charts. They are reluctant to engage With management as a subject, believing it to be “unscientific”.

Finally, we discovered, perhaps not surprisingly, that in terms of learning style, there were an unusually high number of experimenters and doers. 478 IOP members completed our short learning styles diagnostic, with 65% diagnosed as either experimenters or doers, compared to 35% of people who have completed a similar exercise on other projects.

So what did this tell us about the learning design? We knew that they would prefer to learn by doing, not by reading. Where information was provided we would have to keep the narrative brief, using diagrams and lists wherever possible. The experience should feel practical, clearly building towards a useful outcome.

We needed to focus on changing attitudes, but this shouldn't be apparent to the user. Finally, they were intolerant of anything that might require a download or a plug-in and there was a very high incidence of unusual browsers scientists seem to revel in being different. Combine this with an unusually high proportion of Bill Gates haters and you have a need for the thing to work on any set-up.

The learning design and content

The next step was to try to bring together everything we had learnt into the learning design for our project. We had designed our model but how would we communicate it to this audience?



We have applied the formalised three dimensional approach to learning design in a variety of other contexts and it has not let us down.

Understand the objectives, the learners and the content, and you won't go far wrong.

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We had to make decisions in three areas:

- The course structure
- The activity design
- The presentation and design

We decided to create a resource that was divided into two interlinked websites: a learning centre and a resource centre.

For the learning centre we set the following rules:

- Text must always be balanced by imagery
- No lengthy textual descriptions
- Plenty of graphics, tables and charts
- Lots of activities for learning by doing
- No unsupported statements of opinion as fact
- Appropriate language

In the resource centre we would provide detailed supporting material. Everything in the learning centre would be backed up by further information in the resource centre as well as by extensive links to original research sources on the web. This would provide verification for the ideas in the learning centre and ensure the resource was accepted as authoritative.

Within the learning centre we created a structure that was centred around the creation of a personal development plan. The first module would explain the model. The next three modules would encourage users to think through their own situation with regard to each of the management inputs. The final module would bring their thoughts together into the creation of a personal development plan.

The first activity provides very brief information about the topic. The second activity encourages learners to reflect on their own beliefs and competences. For example, by asking them to consider a leader they admire and think about why they are successful, we encourage them to realise that leadership shouldn't be regarded as the preserve of the successful and charismatic.

They provide their opinion and in return they get to see the views of other physicists. This was key. The first two users chose to describe Marie Curie and Stephen Hawking, personalising for others at a key stroke.

The third activity takes them through the process of thinking about their own development needs, linking everything to what they are currently trying to achieve.

The process is this:

1. What changes in the management outputs are you trying to achieve?
2. Which management inputs will help you achieve these changes?
3. How do you rate yourself for these inputs?
4. What skills should you focus on developing?

Results

So what has been the outcome of the project? Firstly, it has been recognised by the learning industry, short-listed in both the E-Learning Awards and the World of Learning awards 2007.

We have developed our own version of the Management PAC resource, with 12 courses supporting the Manager Starter PAC by providing courses focused on each of the management inputs. To our delight the vision we created of reluctant learners has struck a chord elsewhere, with professional bodies in a broad range of different disciplines recognising the issues we identified for scientists as applying to their members as well.

But most of all for us it has led to a clarification of our whole approach to scoping projects. We have applied the formalised three dimensional approach to learning design in a variety of other contexts and it has not let us down. Understand the objectives, the learners and the content, and you won't go far wrong.



Feedback

We subjected the project to expert review. This comment came from the leading management thinker, Professor Richard Scase:

“The Manager’s Starter PAC is an excellent learning and development tool. Interactive learning raises awareness, stimulates self analysis and helps change attitudes. This tool will be of great benefit to people starting in management in both the public and private sectors.”

These comments from experienced learning and development professionals:

“The way that the information is presented will engage learners and importantly, it will get them actively involved in their own development as a manager. The Development Plan that they formulate is an excellent tool which adds to the learning and development feedback.”

Kasmin Cooney, Managing Director, Righttrack Training Consultancy

“This product encapsulates the manager’s role in an innovative and succinct way allowing learners to reflect on both inputs and outputs required and how to personally develop, culminating in the creation of a development plan. It pulls together a breadth of information and activities concerning the job of management and provides a range of useful links to enable managers to take up further learning and personal research. This product really helps you reflect on the manager’s role.”

Louise Clare, Managing Director, Recreate, Learning and Communications Consultancy

Our stakeholders at IOP were delighted too:

“Nelson Croom researched the topic thoroughly, considered what we had said and came up with the Management PAC solution. The tool is excellent for scientists. Not only does it put them in charge of their own development but it also does it in a way that they respond to. Managers can now become more effective in their roles – allowing their management skills to equal that of their technical expertise!”

John Brindley, Director, Membership and Business, IOP

“We wanted an online resource to help physicists to become better managers - people are often promoted to this level because of their technical expertise rather than their management skills. Nelson Croom listened to what we wanted and really took the time to understand what it was that we needed. Then they researched the topic and came up with a great solution. It encourages learners to think about their position and to analyse their own needs. We didn’t want to lecture them about management techniques – we wanted them to understand their importance and help change their attitude to the subject. Nelson Croom helped us do just that.”

Stephanie Richardson, Continuous Professional Development Manager, IOP

And the users loved it as well. Over 1500 people have now used IOP learning online and here are just a few of the comments we have received:

“Very straightforward to use and easy to navigate. I like the fact that you can dip into it as and when you have time.”

“The resource centre is excellent – it stops the pages becoming too text heavy and unreadable but you can still click through to more information if you want to. I thought the course was pitched at just the right level.”

“All in all, this was very easy to use. The Personal Development Plan really makes you think about what areas you need to concentrate on and I like the fact that you’re not forced to go over areas that you’re ok with. The different learning methods are great, and the resource centre is a useful reference that you can refer to when you need to. It’s particularly appropriate for those working in physics-related jobs – too often courses assume that you are in a particular role.”

“This really made me think about my role as a manager and the impact that I have. Completing my Personal Development Plan has given me a clear set of objectives and I can now take the next step and start to address these. An invaluable resource, thank you.”

“What a great website! It’s been easy to use, and I feel much more confident now that I have information at my fingertips should I need to refer to it.”