DESIGN PODCAST

An edited conversation with Phil Tyson

PT
In earlier podcasts, we've talked about questions and questioning, six interrelated fields for learning, and the identification of potentials and goals for question-led inquiries. Where should we begin today, Melvin?

MF
Phil, last time we talked about three types of questions. Generic generative questions, consequent questions, and pointed questions, which represented a process for question framing. By moving backwards and forwards from one to the other, a dynamic structure, not a mechanism, is created.

Iterative scaffold

Could the whole resource provide a structure, or better, an iterative scaffold. A process that can be adjusted to where teachers and learners are or want to go? I think there is such a scaffold.

The first element is a situated challenge, which sets the scenario for an inquiry. Question framing is the second element, which provides strategic direction. And once framed, questions shape exploration processes through which investigations are enacted. With that done, practical solutions seek to turn what has been discovered, or learned, into something with inventive potential or value.

Evolving scaffold

These four elements, in my opinion, that is, situated challenge, question framing, exploration processes, and practicable solutions, form an evolving scaffold.

PT
An evolving scaffold. I think you're talking about frame 29, am I right? But you haven't told us what all the clouds are about.

MF
Oh, well, just up in the clouds again, Phil, you know!

Key bits in each element

They identify key bits in each of the four elements of the scaffold. For a situated challenge, we are talking about looking at different aspects of the situation and looking at the potential for growth. The question framing element is what it says, as well as a process for refining the goals or the intentions behind an inquiry. Exploration processes entail conducting investigations in a variety of different ways and from various points of view. And then the two-stage double diamond focuses on inventiveness and the application of ideas.

PT
I can see a close synergy with frame 23 in the question framing and scaffolding structure that you've just described.

MF
Frame 23 provides a structure, a flexible structure, which is based on a very simple common-sense process. First, we need to get started. And then we need to move

forwards a bit. And when we're progressing nicely, thank you very much, we need to draw things together.

Getting started has two pieces within it. One is positioning to find out where the interests of the learners might be and where the concerns of the teachers are, and what is the nature of the situation or challenge at hand. In setting the scene, educators often talk about learners' prior learning and what is required in terms of curriculum expectations and community aspirations. With all that in mind, selecting two or three generic generative questions has meaning and purpose.

Getting started

Moving forwards then leads to developing consequent questions and pointed questions. A whole stack of questions may come up, which makes prioritizing them important. Learners need to do this as part of their inquiry, in my view.
The ordering processes reveal connections between different questions and helps identify realistic ways to investigate them.

Moving forwards

For example, in the flying machines we had last time, learners might be asked to draw design plans for what their flying machine would look like and use what's in the junk pile to see whatever it was might work. In the climate change example, it might be exploring realistic strategies for dealing with climate change. Learners might go to the net or talk about what's happening in the local community or whatever.

The investigative tasks need to be realistic and doable. When learners have carried out their investigative tasks, it's a matter of pulling them together to say, well, what does all this mean? Where does all this leave us? In a climate change inquiry, it might be, these are the things that are most important. These are the things we should be doing and here's our ways of doing it. Or here's holes, gaps and cavities that need to be filled. In the flying machine inquiry, it might be, we'll give our designs a trial to see which ones work best.

Drawing together

And then to complete the process, backtrack to ask, is what we've done or have in front of us addressing or answering the questions we have posed in the first place? Does it meet our intentions and goals?

Hence, frame 23 outlines a simple process of going from getting started to moving forwards to drawing together.

PT
Melvin, what's the rationale behind the use of the word performance

MF
Phil, its use is deliberate because it focuses on doing things, people performing. It's not a set of activities, which we often talk about in educational circles. It's a set of performances, doing it firsthand or exploring it second-hand or whatever. It's not an act or a piece of theatre and does not necessarily imply the very best or the most outstanding. There will be many different levels and degrees of performance.

Performance as doing things purposefully

Not theatre or activity

PT
Frame 25 is headed question-led inventiveness and consists of a complex diagram with multiple arrows and two large diamonds and an abundance of text. I get the

impression that its messages are important. I hope you can guide us across the frame from left to right to animate the diagram a bit with some practical examples, as you did last time.

MF

Yes, Phil, it is a complex diagram because it has several layers in it. You start any inquiry with a focus.

Starting focus

We mentioned four focus points last time. They were climate change, flying machines, percentage and proportion and transport. You could call the focus of inquiry a starting point. And when that is to hand, you open-up all the things that could be explored and investigated.

Open-up explorations

Over time, you get to a point in this opening up process where you need to close-down to resolve some of the stuff you've discovered and explored. When you've done that, or as you're doing it, you might synthesize a good idea, something that might work or something that's got potential.

Reveal ideas or concepts with potential

Now, with the potential in view, you open-up and explore how best it could be put into practice. Open-up all the possibilities, say from trialling the idea or seeking ways to improve it or whatever. You might develop a better idea or a better way of bringing the idea into action. Again, it's a process of opening-up and then closing-down to act. So that you can then say, right, action.

Possibilities for putting ideas into practice

Outcome action

There's a continuous process of opening up and closing down, opening up and closing down.

Continuous process

There are two stages which are shown as two diamond shapes. The first stage is to discover and design outlined in the first diamond shape. Take transport, for example. You'll be discovering different issues and practices related to transport in your local community. You might even want to redesign air travel. Where are the new and emerging systems? What has been the case in the past?, or whatever. In so doing, you're opening-up to discover and design.

Design and discover

Then you would need to close-down to synthesize design ideas that have value and are worth pursuing. These design ideas or concepts instigate a second opening-up and closing-down process. But the focus changes. It's now develop and enact to extract value from these potentials.

Pursuing design ideas

Develop and enact

Within each of the diamonds, there's the same question framing process we've already discussed. Let's say the generative questions selected are, how is it connected to other things? And how is it changing? And then devise consequent questions that can be investigated. That could lead to all sorts of things about what has happened in the transport in the past and possibilities for the future. The other day, I was fascinated by talk of a new aircraft able to fly from Europe to the United States in a matter of three hours - it blows your mind. And there might also be some very pointed questions too.

Question framing process central to both diamonds

The sets of questions in the first diamond are orientated towards discover and design. A similar question framing process comes into play in the second diamond. But some of the generic questions and the consequent questions are likely to

Question framing influenced by intention

change. Because you are not focused on designing. Instead, you're seeking realistic and practicable ways to put ideas into practice.

Questions change as intentions shift

Hence, in frame 25, there's a movement from a process of discover and design to a process of develop and enact. From an everyday life perspective, it's what we do. But we seldom have done it very clearly or intentionally. Whether we are thinking about home, schools, or even industry and business, a double diamond approach to inventiveness applies.

An unfolding process from design to enact

Wide application

Phil, I'd like to make one other point born on a concern that some people might say this is too complex and doesn't work in teaching and learning situations. Maybe we should model it in learners' inquiries. In so doing, kids would become familiar with what's behind the process and its benefits, sufficient in time to apply the process independently.

Model the process

Become familiar and independent

PT
Well, the picture is becoming clearer now. Thank you, Melvin. I would want to know how to gauge the success of learners' inquiries and how to assess the students' learning.

MF
It's a conundrum, isn't it? Given the current climate in educational circles, a huge conundrum.

Assessment is integral to the strategies of design and discover, and enact and develop in the double diamond strategy for inventiveness. All the time, you're making judgments about does this work? Is this a good idea? And could we improve this? And so on. It's just natural.

Natural part of learning

Another kind of assessment is for learning. In other words, it is diagnostic. Where has the learning reached? And how does that inform what's needed next?

Diagnostic intention

The form of assessment with which most people are familiar is of learning. That is, what has been accomplished and oftentimes reporting on achievements to parents and education systems.

Achievement intention

The three kinds of assessment, during learning, for learning, of learning, are interdependent, which begs the question, who is the assessment for? For me, the primary audiences are teachers and learners. Of course, society expects us to assess where learners are at in their learning, and parents expect to know how well their children are doing.

Three kinds of assessment

If our primary mindset is teachers and learners, it orientates how you approach assessment. It implies collection of a broad range of information. Not just a test or a series of tests. Although they can be useful because we want to know how different learners are performing against standardized scales. Rather than saying you're performing at blue level today or tomorrow you're performing at orange level. It's useful information. But it's only a small part of the information that is needed to make authentic and reliable assessments of where learners are in their learning.

Who is assessment for?

Needs to be authentic and reliable

All sorts of information can be collected. Learners' written work, their photographs, the models they've made, their artwork, recordings of conversations, films, the list goes on and on. But the breadth of information needs to reflect things that are most revealing, the most reliable indicators of learners' learning. Portfolios of learners' work and accomplishments can be labelled as records of development or records of achievement.

Broad collections of learner's work

Portfolio records

In essence they are collections of information of what learners are doing or have done. It is not a question of slotting learning against a set of preordained categories such as Bloom's taxonomy of recall, comprehension, application and all the way up the chain to evaluation. You're really saying let's look at what the learners have done and make some judgments based on that without being constrained by a preordained set of categories.

Not preordained categorisation

How can we go about making these judgments? Well for me one aspect is depth in learning and a second is breadth in learning. Much assessment activities is concerned with complexity of learning which means depth.

Depth and breadth in learning

One way of looking at increasing sophistication is to say is a learner just observing things based on the information from his or her work or is the learner making connections and explaining things, quite different from just making observations. Becoming more sophisticated involves understanding interrelationships. In our transport example the learner might be exploring reasons why there is congestion or why it's impractical to make this or that action or whatever. He or she will be putting things together making connections and discovering interrelationships and then there's the more sophisticated thinking needed to extrapolate ideas and practices to other situations and emerging conditions or challenges.

Assessing depth through 'sophistication' in what learners do

Within each of these levels of sophistication, observation, explanation, interrelationship and extrapolation, a cycle of learning goes on. If you think about the explanations level are one or two things or many things involved in the discussion or are things being connected in a coherent way?

Look for complexity in the cycles of learning within different levels

These two facets of depth in learning inform judgments about increasing sophistication in learning; that is, making balanced judgments, not just focusing on the best or the worst. I don't want to use the word average, Phil, because unbalance requires professional judgment.

Make professional 'on-balance judgments

The other dimension of assessment is the breadth of learning which involves looking at the way learners are doing things. Are they just doing it or are they representing things, often visually, or are they using complex symbols and symbol systems to explain what they're doing? In my view, we don't give as much attention to breadth as we do to depth in learning. Assessment of where people are at in their learning and where to next needs to produce authentic and reliable judgments that are communicable.

Look for breadth in the ways learners are doing things

Phil, at the beginning of my response to your question on assessment, I said it was a conundrum. Perhaps it's the reporting that makes up much of the conundrum. It places high value on people in schools, especially teachers. A key question is how much of a teacher's time is taken up with assessment and reporting, and how much of learning time is sacrificed in the process. Skewing effort towards

Hegemony of reporting

Making time for assessment affects time for learning

assessment instead of towards learning has created a lot of controversy. Processes for reporting to parents or to children themselves, or just having a conversation amongst teachers, needs to be purposeful, effective, and not too onerous.

Conversations not onerous paperwork

If you go to frame 35, which I like to call a spider diagram, there's a very simple way of communicating among these audiences. I think it's got seven different layers of increasing capability or sophistication, and there's five criteria in the diagram. You could put any number of criteria, say three, seven, even two, but by chance there happens to be five in the diagram.

Uncomplicated and communicable picture

Growth in learning is represented visually on a seven-point scale, saying where learners are in relation to each criterion. You can see there are two different patterns shown by the dashed lines, which represent the performances of two different learners. It's a simple visual way of reporting, which I would argue aids conversation amongst teachers, conversation amongst parents, and indeed people outside schools.

Visual picture aids conversations

Phil, one other point about the spider diagram. It's a computer graphic, which means that the business of recording is simplified, and if you want to compute assessment of several learners together, you can do so quite easily. Electronic recording of assessments in schools and systems might become easier, leaving more time for teaching and learning.

Simple computerised graphic which is scalable

PT
To wrap up Podcast 3, Melvin, if you were asked to extract a set of major propositions from the Educational Design Gateway (see podcasts labelled as FOUNDATION and DESIGN on the website), what would you include?

MF
That's not easy, Phil, because it's very broad, but there are a few things. The resource provides a foundation that is practicable. It provides structures and processes for putting question-led learning into practice. It contains iterative processes which are doable, and above all, it emphasizes the need for artistry in teaching and learning.

Artistry into practice

PT
Well, thank you for your time, Melvin. I know that your support for users of the resource through these podcasts is appreciated.

Several of them have said your words are helping them to consolidate what they're learning through their reading and reflection.