'Putting knowledge to work' – a new approach

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The central challenge
for 'work-integrated' programmes leading
to new forms of qualification remains

How best to bring together
subject-based and work-based knowledge,
in ways that meet the
requirements and expectations of
the learner/employee, the employer,
the provider, the awarding and
professional bodies.

Practitioners know how difficult this is…

The need for fresh thinking…

- Approaches to these challenges have typically focused on how learning can be 'transferred' from one setting to another, usually from theory to practice.

- Attempts at transfer continually dogged by the assumed 'abstract' nature of theory in relation to the assumed 'real' nature of practice.

Work-integrated Programmes: the challenges

- have always been tricky to design

- Why? involve forms of knowledge characterized by different logics

- disciplinary, work process, professional institute, legal, individual etc

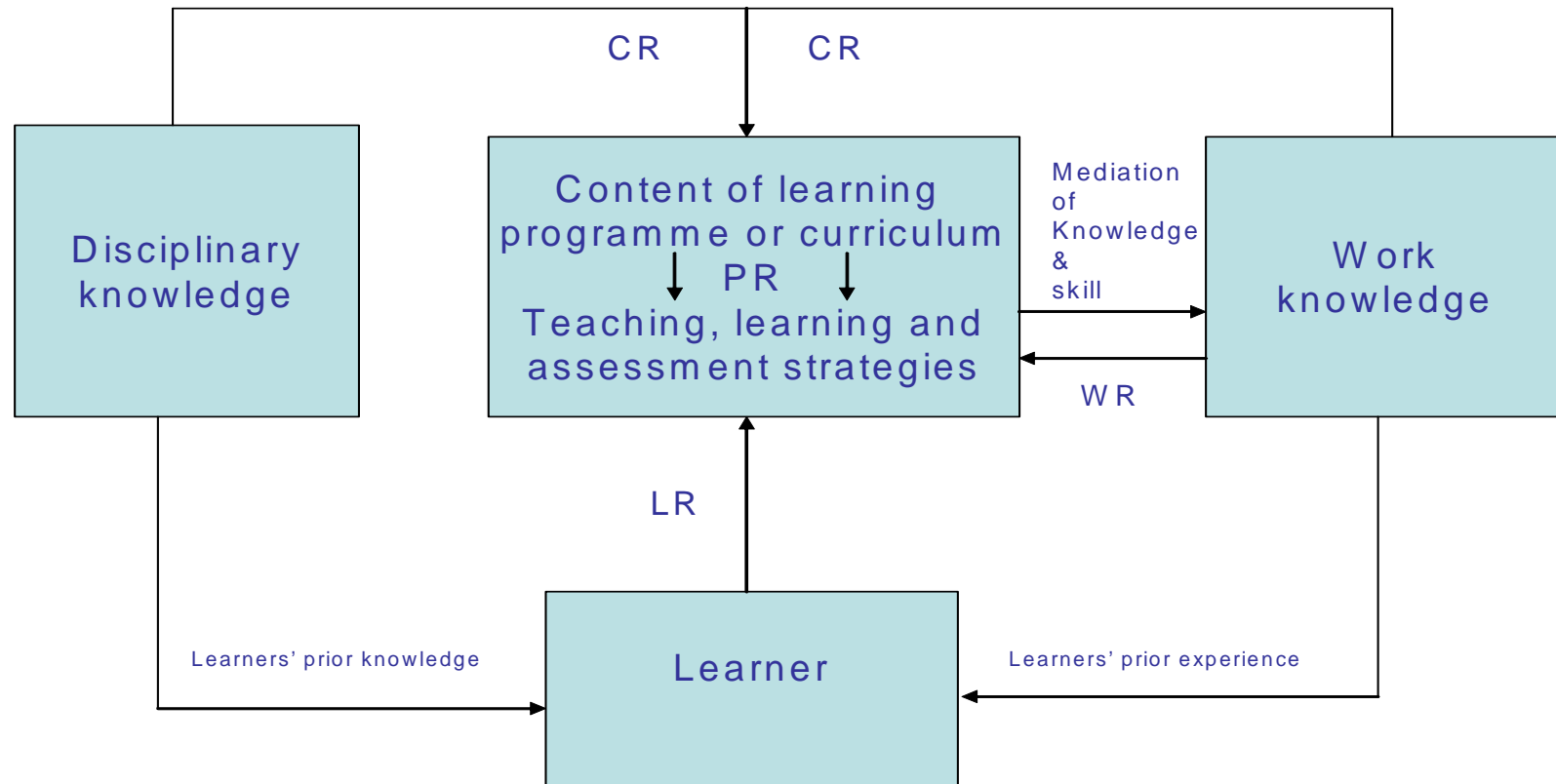# A new and different approach…putting knowledge to work

- Concentrates on different forms of knowledge and the ways in which these are **contextualized** & **re-contextualized** as people move between different sites of learning and practice.

- Encapsulates:

    - the nature of knowledge itself

    - employment practices which shape and are shaped by knowledge

    - ways learners make sense of these contexts, personalize their learning and develop professional/vocational identities

Effective partnerships depend on

Putting knowledge to work:
- in the programme design environment
  (CR – Content Re-contextualization)
- in the teaching and facilitating environment
  (PR – Pedagogic Re-contextualization)
- in the workplace environment
  (WR- Workplace Re-contextualization)
- within the learners themselves
  (LR – Learner Re-contextualization)

Putting Knowledge to Work: Framework

CR   CR

Disciplinary knowledge

Content of learning programme or curriculum
PR
Teaching, learning and assessment strategies

Mediation of Knowledge & skill

Work knowledge

WR

LR

Learners' prior knowledge

Learner

Learners' prior experience

- Effective partnerships depend on bringing together and 'recontextualising' the different logics of work-based and subject-based knowledge, to make them work in each of these environments

- I will illustrate how putting different forms of knowledge to work in the programme design environment enabled a partnership between KLM-UK and Kingston University to develop a new qualification for Aircraft maintenance engineers.

Putting Knowledge to Work in New Forms of Qualification

With Reference to Foundation Degree (FD)/B.Eng (Hons) in Aircraft Engineering

(KLM UK Engineering with Kingston University)

A programme for career entrants that addresses a skills shortage by meshing a Foundation Degree (FD) with professional licensing requirements

- This exemplar describes and analyses a Foundation Degree (FD) in Aircraft Engineering for aspiring maintenance engineers whose principal responsibilities will be the testing and repair of large commercial jet aircraft and their associated equipment and systems.

- The FD is a university-industry partnership between Kingston University and KLM UK Engineering designed to address skills shortages in the industry. The FD provides a means to bridge vocational and academic qualifications and associated career pathways.

PKTW in the programme design environment (CR)

- The process by which 'codified' knowledge is selected and recast for particular learners, as part of programme design

- The KLM-Kingston Univ. programme shows how new criteria were negotiated and used to sequence learning programmes that draw from science-based theoretical, technical and operational knowledge.

- **The FD is capable of supplying trained employees to the industry in a way that is commensurate with Europe-wide registration requirements whilst also offering the option of academic progression.**

- The industry has clear criteria for training and training providers. The FD acts as an envelope for the EASA Part 66 B1 licence training and also provides a progression route to honours degree status.

- **There are of course other ways to gain licensed status: via self-study or direct Pt 66 training or via a City and Guilds programme (CG 2661).** *What distinguishes the FD-EASA alignment is the possibility of progression to honours degree level.*

Aircraft Engineering

Shape of the FD programme:

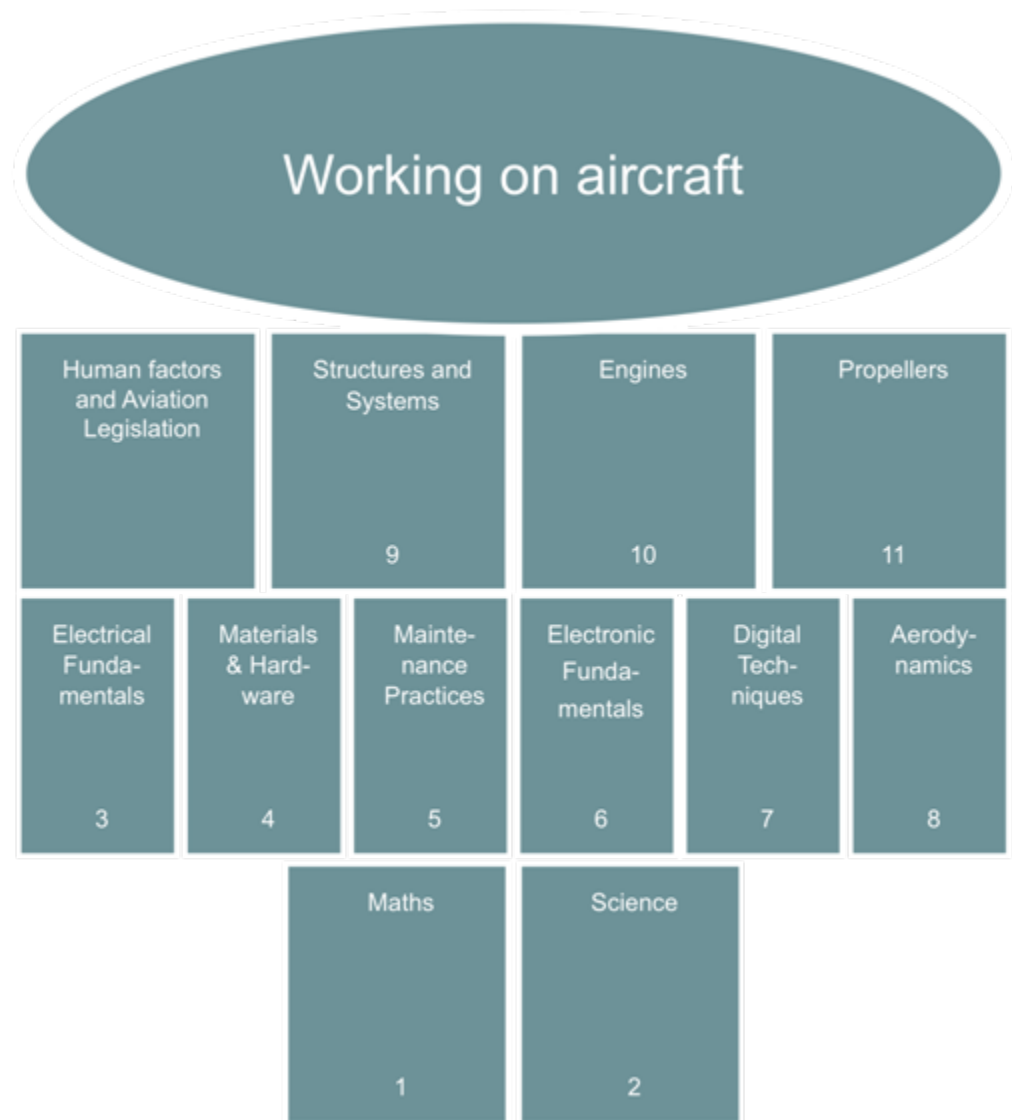*(Honours -1 yr ft or 2 yr pt - follows)*
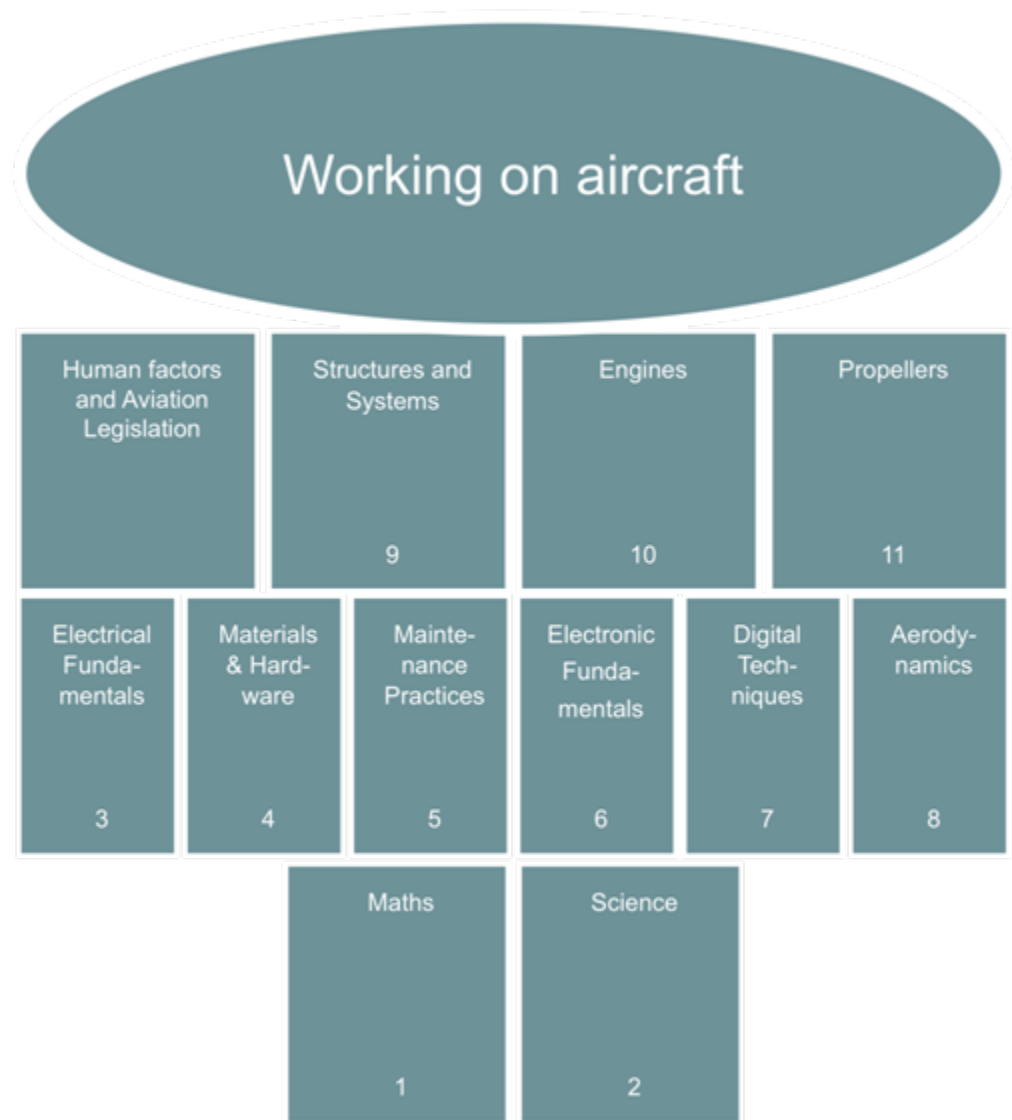
- A clear logic for the sequencing of modules. The programme introduces 'the aircraft' as an integrative space over and above the cumulative building of knowledge within a modular format.

- The principle 'gradual release' is used by college staff to capture this process (see 'book of exemplars' for details).

- The result is a demanding programme, possibly more demanding than a conventional degree which may **only** require knowledge building: 'students think this looks easy but in reality it's harder than a degree'.

Aircraft Engineering

Shape of the FD programme:

(Honours -1 yr ft or 2 yr pt - follows)

Working on aircraft

Human factors and Aviation Legislation	Structures and Systems	Engines	Propellers
	9	10	11

Electrical Funda-mentals	Materials & Hard-ware	Mainte-nance Practices	Electronic Funda-mentals	Digital Tech-niques	Aerody-namics
3	4	5	6	7	8

Maths	Science
1	2

Achieving common ground:

- Collaborative and collegial working between two main role-players at the local level who - although in different types of institution - are from the same specialist industry community.

- Aligning two sets of regulations is not easy. In this exemplar it is successfully attended to by extending a 'normal' FD programme; adding some content and by using two sets of assessment methods.

PKtW in the programme design environment (CR) allowed us to learn more about the subject knowledge in the programme:

Physics and Maths → Engineering

Branches of Engineering e.g. Aerospace = further selections from Engineering for specialised purposes

Law → Aviation Legislation module

Social Psychology → Human Psychology → Human Factors module

'Gradual release' as promoting a chain of recontextualisation (PR)

Gradual release in the design of the programme

- sequencing of modules to build and integrate knowledge

+

- orienting the programme to the operational environment

Gradual release: orientation to the operational environment (PR-WR)

Two dimensions: time + predictability

- Strengthen and develop knowledge through extended time and exposure with familiar equipment
- Make mistakes in a controlled environment, closely supervised
- Move from predictable to more unpredictable tasks
- Feedback tailored to workplace and academic criteria
- To the point where operating under time and (un)predictability pressures of the operational environment.

Gradual release: inside the operational environment (WR)

- Key people occupying boundary roles
- Shadowing
- Mating-up
- Peer support
- Planning incremental responsibilities
- Debriefing that focuses on developing confidence in putting knowledge to work
- A role for the industry educator….

Assessment tensions…

- One challenge that members of staff at Kingston University and the KLM College faced as they aligned EASA and Foundation Degree specifications was different views about the purpose of assessment.

- *From the EASA perspective, knowledge is largely seen as information that can be tested via multi-choice methods; from the FD perspective, knowledge and understanding need to be tested via more discursive and varied means.*

- Rather than fighting for their respective positions, it was agreed that both types of assessment would be deployed in the hope of developing a more 'rounded engineer'.

Using the framework

- Programmes, practices and previous research findings can be analysed (and re-analysed) according to these re-contextualization processes
- With the aim of maximising the linkages between work-based and subject-based knowledge
- And identifying ways of 'putting knowledge to work' to the benefit of students, employers and providers.

Putting Knowledge to Work –further information

- Full findings (Karen Evans, David Guile, Judy Harris) can be found on the WLE Centre site

- [Click here: Work-Based Learning for Education Professionals :: WLE Centre for Excellence - Putting Knowledge to Work](#)

- Exemplars, cross-cutting themes and guidance notes available on CD Rom

- Research briefing RB60 available on the ESRC TLRP website tlrp.org.uk