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Article:

Title:

Feedback Mapping – The Curricular Cornerstone of an 'Educational Alliance'

Short Title:

Feedback Mapping

Abstract

<u>Purpose</u>

The 'educational alliance' concept articulates a collaborative framework to facilitate effective feedback through transparency of opportunities aligned with learner stage and intended educational outcomes. Using this framework, we evaluated feedback across a 5 year undergraduate medical programme to support embedding a successful learner – teacher 'educational alliance'.

<u>Method</u>

A comprehensive mapping exercise used an iterative action research process of source documentary analysis, consultations with key curriculum stakeholders and qualitative analysis. The 'educational alliance' model provided a critical lens through which to ensure feedback opportunities aligned with intended learning outcomes and developmental progression.

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Results

Key information about the type, frequency and timing of feedback opportunities were identified within 188 curricular components. The purpose and intended learning outcomes were mapped, aligning with the stage of learning and with an expectation of supporting learners' capacity for self-regulation. This focus providing clear articulation of feedback opportunities supported the longitudinal developmental curricular review, and facilitated enhanced awareness of dialogic feedback within the 'educational alliance'.

Conclusions

Explicit alignment of learning intentions between learner and educator is key to forming a successful 'educational alliance'. The feedback map provides clarity ensuring mutual understanding of intended learning outcomes. The iterative process additionally certified feedback aligned with maturing learner developmental needs across the programme.

Introduction

Feedback serves a greater purpose than simply providing information about current levels of skill and knowledge against recognised standards. It is one of the most powerful influences on learning (Hattie and Timperley 2007). Effective feedback plays a pivotal role in developing a learner's ability to critically analyse their own performance, use external judgements of progress against performance standards, and identify future goals (Van de Ridder et al. 2008). This capacity for self-regulation underpins lifelong learning and preparation for future practice (Butler and Winne 1995) .

Feedback interventions cannot be assumed to result in performance improvement(Kluger and DeNisi 1996). Feedback competes with other learning cues and is subject to learner perceptions, maturational differences and learning cultures (Murdoch-Eaton and Sargeant 2012, Watling 2014a, McLean et al. 2015). Learners consistently express dissatisfaction, and frequently report receiving less feedback than educators believe they are giving, resulting in the so-called 'feedback gap' (Gil et al. 1984, Sender Liberman et al. 2005, Jensen et al. 2012). These contrary perceptions illustrate differing recollections of not only whether feedback has actually happened, but also whether the learner has recognised the feedback and how they may use it to construct meaning (Irby 1994, Van de Ridder et al. 2008, Murdoch-Eaton and Sargeant 2012).

This diversity in feedback recognition and utilisation poses considerable challenges for educators to facilitate its' impact upon learning. Despite using accepted feedback techniques to address feedback quality, this has had little impact on remediating learners' discontent and is criticised for being founded in a "contextual vacuum" (Boud and Molloy 2013). In practice, these techniques may impose the unidirectional transmission of feedback from an 'expert' teacher to the 'novice' learner, and consequently position the learner as a passive receiver (Clarke and Molloy 2005). Current best practice proposes that feedback should be considered as a dialogic process; a "conversation" where the learner becomes an active participant (Butler and Winne 1995, Boud 2000, Cantillon and Sargeant 2008, Murdoch-Eaton and Sargeant 2012).

The recent articulation of an 'educational alliance' between the learner and educator describes a valuable conceptual model to advance feedback practice (Telio et al. 2015). It focuses on the relationship and mutual responsibility of the learner, educator and the context of feedback, within which the learner's perception of feedback is central to influence learning. The literature supports this concept, suggesting feedback is more successful when the feedback provider invests time in the relationship, signifying a "factor of trust", and engenders a shared "cultural background" (Norton 1992, Sasanguie et al. 2011, Ridder et al. 2015). The 'educational alliance' conceptual model centres on a collaborative framework underpinning the supportive educational relationship required to facilitate feedback impact and the development of self-regulated learning. The key principle of fostering a culture of transparency and coherent progression in feedback encounters between the educator, the educational programme and

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learner is the cornerstone of a successful 'educational alliance', as illustrated in figure 1 (derived from Telio et al 2015). Most importantly it has potential to establish more realistic expectations within learners of what a course can or should deliver. This hinges crucially on providing opportunities to empower learners' capabilities through curriculum design that facilitates recognition and utilisation of feedback (Boud and Molloy 2013).

It was identified that in order to enhanced recognition and utilisation of feedback by both learner and educator, a comprehensive mapping exercise of all key feedback encounters within our undergraduate medical programme was required. This was envisaged as the first part of an educational intervention designed to address the curriculum design and content key aspect of the "education alliance" (as diagrammatically represented in Figure 1).   The feedback curricular map was undertaken as an initial first stage of elucidating the range of opportunities for feedback from the perspective of the educational providers i.e. from teachers and within the curricular components (A in Figure 1). The purpose was not solely to ensure that opportunities for feedback were embedded across the curriculum, but additionally to validate that that identified available feedback opportunities are appropriate to the stage of the learner, and aligned with the intended purpose and learning outcomes of both the programme and individual curricular components (Boud and Molloy 2013, Telio et al. 2015).

Dialogue and participation between learner and tutor are central to ensure effective feedback within an 'educational alliance' model   (Telio et al. 2015,

Boud and Molloy 2013). The mapping process designed and described within this paper was designed to ensure the foundations of appropriate feedback were in place across the programme from which to build upon for implementation of an effective "educational alliance". The next steps, and for further study, would involve addressing the role of the educator, and learner, functioning effectively within the overall educational programme (B and C in Figure 1).

Methods

Context of Study

The study was undertaken in a UK medical school, with student population of approximately 1280 students spread over the 5 years of the undergraduate programme. Students are admitted predominantly after leaving high school (~93% aged ~18 years) with around 7% having undertaken previous university study. Approximately 5% of entrants are from a wider socio-economic background selected via a targeted admissions route (Medical Schools Council 2014), and 8% are international ie non EU residents (data from 2015, a typical entry cohort).

The hybrid integrated programme delivers four phases: Phase 1 - Introductory Clinical Competency and Medical Sciences (~1 year) ; Phase 2 - Basic Clinical Competency(~18 months); Phase 3 - Extended Clinical Competency (2 parts over 2 years) and a final Phase 4 - Advanced Clinical Competency (6 months). Early phases are predominantly based within university premises for lectures, small group work (including problem-based learning activities), seminars and directed self-learning activities. Clinical exposure occurs from the first term within primary and secondary care to contextualise theoretical learning. Clinical placements predominant in later phases with students wholly based in hospital or community health provider settings. Self-directed learning increases and aligns with individual or small group attachments working closely with clinicians on sequential rotations. This in practice means that supervision transitions from university-based teachers, who often have responsibility for whole cohorts and in-depth curriculum understanding, to supervision by practising clinicians within

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their defined specialty. Clinical teachers inevitably have less extensive knowledge of the overall programme of undergraduate training (Glover et al. 2015).

Feedback Mapping Process

This project team was drawn from the curriculum management team, and comprised the first author (DME), the director of learning and teaching and the curriculum phase leads. We identified 3 key requirements of a feedback map; firstly, to catalogue the critical feedback constituents within each curriculum phase aligning with intended learning outcomes; secondly, to articulate the underpinning developmental potential, and thirdly to demonstrate alignment and progression in feedback provision within curriculum phase and across the entire programme. These components were captured within identified categories (table 1).

A participatory action research approach was chosen as it involves practitioners as both subjects and co-researchers (Greenwood et al 1993), as illustrated by the exploratory mapping exercise process (figure 2). Stage 1 involved source documentary analysis of all written and online Virtual Learning Environment (VLE) curriculum content, including course handbooks, assessment guides, and individual teaching sessions' learning outcomes to identify the critical feedback opportunities. Stage 2 of consultation with teachers and faculty, including academic, clinical and administrative professional support staff informed refinement within the process(Carr and Kemmis 2003). A collaborative and

iterative process of evaluation and refinement followed with purposive consultation with key individuals involved at all levels of engagement, from academics involved in strategic oversight through to teachers (often clinicians) delivering individual sessions. Phase administrators within our school are considered fundamental to validating information disseminated to students and staff, and thus they were the first individuals consulted after documentary analysis. The subsequent discussions developed clarity in articulation of feedback opportunities contained within defined outcomes for each programme component. Areas of uncertainty were identified, clarified and rectified through iterative discussion, individually and collaboratively. The iterative process was repeated until full consensus reached that the complexity of feedback opportunities had been captured clearly, and reflected intended purpose, both within phase and developmentally across the programme. This took approximately 4 months.

Key participants' (Phase leads and administrators) reflections of the mapping process were gathered at this final stage to explore their perspectives on the value of this feedback mapping intervention.

Results

Stage 1: Feedback Mapping Product

After review of 154 curriculum documents and consultation with 33 staff, the feedback map created spans 20 A4 pages and identifies some 188 curricular components across the programme through which students can or will receive feedback (phase 1 n= 30; phase 2 n =43; phase 3a n=53; phase 3b n=40; phase 4 n=22). The map provides key information regarding the type, frequency and timing of feedback, including whether this is individual or group feedback. Most importantly, the section on purpose and intended impact on student learning is articulated, and highlights key professional and/or educational development areas for learners aligned with the programme stage. This map was made available for staff and students via the VLE, integrated within a specifically designed feedback area. This space provided access to additional learning materials, including e-portfolio tools for learners to monitor, track and record their feedback and associated reflections.

Table 2 shows an example map section illustrating feedback provision within a mid-programme clinical specialty rotation, and the diversity of learning experiences within which different feedback may be provided appropriate to the task and learning intention. Daily verbal feedback on 'overall performance' is likely to come from a range of health care professionals, and given with the intent to encourage skills practice and identify areas for enhancement during placement. This is frequently a feedback type that is variable, dependent on both supervisors and learners, and is frequently not recognised (Murdoch-Eaton and Sargeant 2012,

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Watling and Lingard 2012, Ridder et al. 2015). Written feedback follows
observed clinical performance, and at the end describes the students' performance
and progress throughout the placement against recognised standards identifying
their overall strengths and weaknesses.

Table 3 illustrates feedback provided within written assignments completed
within a type of learning experience distributed across the programme; Student
Selected Component projects (SSCs). The assessment templates reflect intended
progressive learner development, presented through enhanced expectations of
independence and critical reflection. The feedback map illustrates a gradual
reduction in external feedback aligned with an expectation that learners develop
capacity for self-regulated learning through improved reflection on outcomes and
in planning for future choices.

Stage 2: Staff Consultations

We asked key staff who are instrumental in curricular design and delivery to
analyse findings from the documentary analysis and mapping process, using the
critical lens provided within an 'educational alliance' concept (figure 1).
Illustrative quotes from these staff (P=professional A=academic, programme year)
highlighted their enhanced role recognition in supporting the educational
partnership approach.

"...seeing the feedback mapped out, I was totally surprised by how much is given
in the early years. I had not realised the amount or frequency of feedback to

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students and, if I did not know, then I am not surprised that the students were not *fully aware of feedback opportunities."[P 1]*

"I was astounded by the number of feedback points in the course… It made me feel more confident about directing students to sources of feedback and reminding *students where they could seek feedback." [P 2]*

The approach facilitated clarity in not only the purpose and type of feedback, but also longitudinal developmental review within and between course components.

"I think the Purpose and Impact section on the feedback map is extremely useful to students - it enables them to make the most of the feedback they receive. Before the mapping exercise took place this information had not previously been gathered into one document and now the students (and staff) have a very useful *reference resource." [P1]*

The process enabled a wide range of faculty staff to review curricular components, reinforce the purpose of the exercise to themselves and debate their role within the 'educational alliance'.

"For me, the mapping exercise illustrated an important gap in our feedback process. We now know that feedback is given at numerous points in a year, but apparently our students are not aware of it. The onus is on us to ensure feedback *is properly (signposted)… done, with the student's knowing participation." [A3 /* 4]

Discussion

The purpose of this study was to evaluate feedback provision across a 5 year undergraduate medical programme. The rationale for this educational intervention originates from student dissatisfaction with feedback; students feel they are being given less than educators believe they are giving which has resulted in a substantial 'gap' in perceptions. Under the conceptual framework of the 'educational alliance', clarity on purpose of feedback within the programme, and the demonstration of an alignment of values and learning intentions between stakeholders must be explicit in order to form a supportive educational relationship and feedback must "permeate the curriculum" (Boud 2015, Telio et al. 2015). A successful 'educational alliance' necessitates transparency between educators, learners and the curriculum ie all components within figure 1.

The feedback-gap can be considered to result as a consequence of an unsuccessful 'educational alliance' which, in order to be reconciled, requires the active participation and responsibility of both parties. In repositioning the learner as an active agent in the feedback process, Boud describes that feedback should be "nested" in curriculum design, providing "incremental tasks that allow for learning to be demonstrated" (Boud 2015). The educator on their part must therefore, not only facilitate opportunities for feedback, but ensure this provides appropriate evidence of the underpinning curricular purpose and demonstrate an alignment with the learner's beliefs and their stage of learning. Learners have previously articulated a desire for "reliable, a valid and a transparent evaluation" (Coens et al. 2012). Educators must therefore ensure clarity and the mutual

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understanding of the intended outcomes of the educational event, and do so in the anticipation that the learner will actively participate in seeking and understanding the feedback given. The learner's perceptions of these factors form a critical component of the 'educational alliance'; source credibility is the learner's determination of the "beneficence" of the educator to themselves (Telio et al. 2015, Weinstein 2015).

Feedback perception (and recognition) by the learner has many influences. This is especially within the complex clinical learning environment where distracting and competing influences coexist, many of which have contextual credibility and thus have potential to significantly impede potential learning or recognition of feedback opportunities (Watling 2014b, Ridder et al. 2015).

Feedback involves utilisation of both internally and externally provided judgements. External feedback given by a credible educator serves to "calibrate" the learner's internal feedback to a point where they are able to trust their own judgement (Boud 2015). The complexity of feedback evidenced by variation in implementation, impact and influence on learners means it remains a fraught concept within education and training (Hattie and Timperley 2007, Shute 2008, Ridder et al. 2015).

By reviewing the feedback opportunities through a critical lens of the 'educational alliance', we endorsed educators determining feedback opportunities aligned with

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the stage of learning of the student, reflecting maturational changes (Murdoch-Eaton and Sargeant 2012, Baxter Magolda 2010). Understanding the needs and type of the learner was essential in determining curricular alignment with self-regulation development. Diversity in learning is well recognised in terms of age but also prior experience. However, the difficulty lies in designing a course that meets the needs of all its learners. By mapping the feedback across the curriculum in this way, attention is focused on ensuring there is sufficient diversity of learning experiences and feedback to meet a range of student needs. Articulation presents for learners and educators a programmatic feedback map intended to address intrinsic cognitive load transitioning from simple to complex aligning with changing needs of learners and the complexity of learning within the clinical environment (Watling 2014b). This medical school has a majority of high school leavers in its cohort; the graded transition in learning experiences, and aligned feedback reflects the maturation changes anticipated to develop self-regulated learners within these younger learners than if the cohort was predominantly graduate entry. This key part of the 'educational alliance' should provide a mechanism by which the learner is facilitated in their role within the alliance.

Along with the intended outcomes of identifying whether feedback has been given in the right way, secondary effects raised awareness of feedback amongst educators and identified any training gaps. Most importantly within the complexity of clinical undergraduate training, including many teachers who themselves may be in training and thus on short rotations, inevitably educators may have limited knowledge of prior curriculum content and purpose. Thus central course developers / faculty may have mistaken assumptions that all

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teachers and learners fully appreciate intended learning opportunities and individual developmental needs. Previous research has highlighted that staff often lack understanding of the whole programme outside of their components, particularly regarding assessment (Glover et al. 2015). Therefore, the action research iterative approach was a strength of this exercise itself; it enabled educators and course leaders to consider integration within and across the programme. They considered whether they themselves had provided the necessary development for learners, built upon previous curricular components, and how clearly that was articulated. The map could therefore be employed as a tool for curriculum designers, administrators and educators to critically analyse feedback provision.

The map has also provided, from an educator perspective, a valuable opportunity for students to be able to consider a longitudinal perspective on feedback opportunities across their programme of learning. If learners are to be re-orientated to become active participants within the feedback process, the curriculum must provide graded opportunities for "learning to be demonstrated" (Boud 2015). The map should enable learners to reflect on feedback received within previous learning experiences, where to expect feedback in future learning encounters, and consider the intended learning intent with aligned feedback type. The map has been made available on the VLE along with other resources for staff and students including providing advice on (for example) 'making the most of feedback', 'what to do when feedback is received' and tools to record reflections. It is intended that the map will also act as a tool for students to proactively

identify feedback opportunities available to further their learning within an authentic context of the 'educational alliance'.

Whilst a limitation of this study is the context specificity of any individual schools' curriculum content, the principles of the 'educational alliance' rationale apply irrespective of the curriculum model and are transferable between institutions. Moving from a transmission model of feedback to one that repositions learning influenced by feedback owned by students requires this aspect of the 'educational alliance' to be addressed. Boud and Molloy (2013) emphasise creating opportunities for learners to develop "capabilities" to direct their own learning; this requires articulation and integration of curriculum components to shift to "a collection of isolated acts to a designed sequence of development over time"(Boud and Molloy 2013).

It would be naïve to assume that simply undertaking a feedback mapping intervention would ensure that feedback actually happened. This would be impossible to validate without video recording of every single educator-learner encounter. However, this curricular review and feedback mapping was undertaken alongside initiating a wider faculty development programme, to facilitate effective feedback delivery through learner-centred "conversations" (B in Figure 1). All components of the feedback interventions crucially aimed to provide clarity for learners to identify opportunities for feedback and facilitate their understanding and recognition of the underpinning purpose of the educational provision (C in Figure 1).

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The process has additionally emphasised the centrality of understanding the needs and type of learner and demonstrating an alignment of this within the curriculum. What remains to be further understood is the role of the student in an 'educational alliance'. This includes ensuring "better quality information about student learning"(Boud and Molloy 2013). It also requires developing models to clarify influences on feedback perception to fully realise the ideals of the 'educational alliance', grounded within mutual responsibility for effective outcomes of undergraduate medical training. Van de Ridder (2015) recently indicated there is "a lack of systematic research into variables influencing the reception, perception and interpretation of feedback"(Ridder et al. 2015). Further work would be to understand whether students recognise the feedback from the map in practice and how useful the map is to them(Bowen, Marshall & Murdoch-Eaton 2017 in press) . With a view to offer insight and implications for the training, under the framework of the 'educational alliance', understanding and addressing the feedback literacy skills and needs of both learner and educator, could provide a novel approach to facilitating effective feedback.

Practice Points

- Effective feedback necessitates clarity and mutual responsibility of intended outcomes from programme design, educator and learner

- Transparency on feedback opportunities across the curriculum especially on intended impact and underlying developmental purpose are essential for learner and educator to have meaningful dialogue

- Curriculum feedback mapping with an conceptual lens of supporting an "educational alliance" is the key cornerstone

Declaration of Interests

Notes on Contributors

Professor Deborah Murdoch-Eaton is Dean of Medical Education at the University of Sheffield, UK. Her academic interests focus on social accountability, developing students' potential and individuality, and grappling with the complexity of embedding effective feedback practice.

Ms Lucy Bowen is a science graduate, who undertook a graduate internship and research assistant post within the Academic Unit of Medical Education, University of Sheffield, Sheffield , UK.

Ethical Approval:

The study was not considered to require ethical approval by the University of Sheffield ethical review panel, as its' scope fell within the remit of curricular development. Participants were members of staff undertaking the work as part of their curriculum educational role within the medical school.

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Table 1. Framework for Feedback map components

Feedback Map Category Headings	Curricular Component Content Descri...
Curricular component	Curriculum component within designated Phase of undergraduate medical...
Type of Assessed Outcome	Activities designed to evidence defined course component learning outcom... opportunities to receive feedback.
Frequency of feedback	How often a student can expect to receive feedback from learning activitie... frequency of feedback is dependent on the learning task and reflects the in... component.
Feedback type	Feedback types include verbal, written or by online modalities. The feedba... situation described, and additionally reflect the stage of the learner.
Group or Individual	Feedback given by teacher or peers, individually or to a group of learners
Feedback Timing	This section ensures that students are aware of the likely time of receiving... acknowledging that feedback should be given as close to the learning even... both provides deadlines,and recognises and highlights the administrative p... consultation and grade approvals with external examiners).
Purpose & Impact on student learning	The pedagogical reasoning behind the feedback provided, including alignm... outcomes, and stage of learner development.

Table 2. A clinical rotation, mid way through the MBChB programme, illustrating the range of feedback opportunities within the learning activities

Curricular Component	Type of Assessed Outcome	Frequency of Assessment/ Feedback	Feedback Type	Group or Individual	Timing/ Proximity to Assessment
Phase 3a: Women's Health (7 weeks)	Overall Performance	Once	Clinical attachment assessment and feedback proforma	Individual	By end of placement
		Daily	Verbal	Individual	Immediate
	Observed short case	Twice	Verbal & Written	Individual	Immediate
	Observed long case	Once		Individual	Immediate
	Reflective Case Study	Once	Part of Clinical Assessment and feedback proforma	Individual	By end of placement
	Integrated Learning Activity (ILA) tutorials	Six times	Verbal	Group	Immediate

Table 3. Extracts from the feedback map across the programme for Student Selected Components (incorporating selected project work or attachments). This

Type of Assessed Outcome	Feedback Type	Group or Individual	Feedback Timing	Purpose & Impact on student learning
Essay	Written & Online	Individual	Within three weeks of submission	• Comply with written instructions • Search the literature and construct a coherent argument • Identify strengths and weaknesses of scientific writing skills • Use a referencing system, avoid plagiarism • Meet submission deadlines
Report	Written – Medical Ethics Structured Case Analysis Feedback template	Individual	Within 3 weeks of submission	• Critically reflect and reason on real case examples of legal issues • Develop ethical sensitivity during uncertainty in medical de • Articulate an understanding of why patients' values, beliefs should be incorporated within medical decision making pro
Community Placement	Written – Community Placement Feedback template	Individual	Immediate	• Develop an understanding of local health needs and the so determinants of health • Undertake a local community placement within voluntary services other than the NHS, and co-create learning objecti placement provider
Digital presentation of work	Peer evaluation	Group	Immediate	• Work in small groups, peer assess individual contributions presentation
Reflective portfolio	Written (online) SSC feedback form	Individual	Within three weeks of submission	• Produce a reflective portfolio based on their experiences d community placement, their group experience and the ant on future clinical practice.
Overall performance and professional behaviour	Written (Placement Assessment template) & Verbal	Individual	End of SSC	• Provide students with an opportunity to choose a final clini which is of personal (learning needs) or vocational interest • Define personal learning goals for the SSC period • Gain experience in a branch of medicine which is of person interest
	Verbal	Individual & Group	Immediate	• Extend clinical and practical skills in a specific branch of me • Work as part of the clinical team

illustrates the developmental intention underpinning progressive learning and aligned feedback across the programme for this type of learning.

Figure 1. The "educational alliance" feedback and learning model (derived from Telio, Regehr & Ajjawi, 2015)

A

Curriculum

"What is taught?"

"Is feedback embedded and aligned within intended outcomes?"

LEARNING

FEEDBACK

Learners

Teachers

"What is learnt?"
"How does feedback help me?"
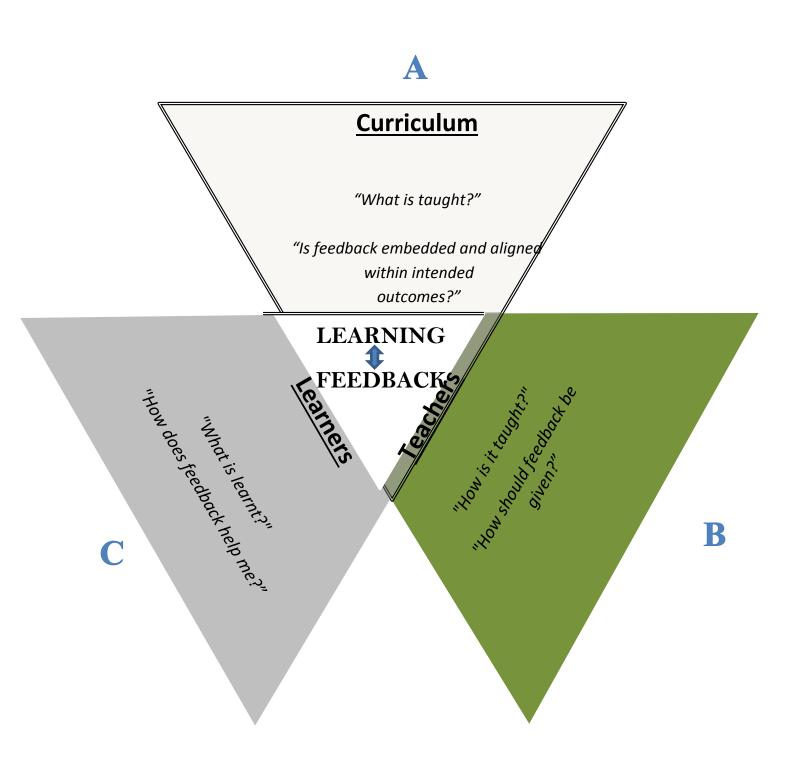
"How is it taught?"
"How should feedback be given?"

C

B

Figure 2. Curriculum analysis stages in creation of the feedback map

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┌─────────────────┐        ┌─────────────────┐        ┌─────────────────┐
│ Framework       │        │   STAGE 1:      │        │                 │
│ devised         │  ───►  │                 │  ───►  │ Draft section   │
│                 │        │ Written and     │        │ created         │
│ (Table 1)       │        │ online          │        │                 │
│                 │        │ curriculum      │        │                 │
│                 │        │ analysed        │        │                 │
└─────────────────┘        └─────────────────┘        └─────────────────┘

┌─────────────────┐        ┌─────────────────┐        ┌─────────────────┐
│   STAGE 2:      │        │                 │        │ Near final      │
│                 │        │ Draft sections  │  ───►  │ version         │
│ Meetings with   │  ───►  │ refined         │        │ approved –      │
│ Phase           │        │                 │        │ wider           │
│ administrators, │        │                 │        │ consultation    │
│ academic &      │        │                 │        │ and curriculum  │
│ professional    │        │                 │        │ committee       │
│ staff           │        │                 │        │                 │
└─────────────────┘        └─────────────────┘        └─────────────────┘

┌─────────────────┐
│ Final version   │
│ published &     │
│ available to    │
│ all staff and   │
│ students on VLE │
└─────────────────┘
```