Trinity Education Project: Resources

The resources enclosed have been compiled to support academics as they review, renew and refresh their curriculum as part of the Trinity Education. Please note that as new resources are developed they will be added to this document and uploaded to the website on a regular basis. Should you have any queries please contact trinityeducationproject@tcd.ie

1. Resources developed by TEP Fellows and Trinity Teaching and Learning

Resource Toolkit: An Introduction

The Trinity Education Project Fellows spent the academic year of 2016–17 regularly meeting colleagues within Trinity College Dublin about various aspects of TEP. Assigned to individual schools and working closely with college officers on the implementation of TEP, the Fellows also gathered regularly as a team, learning from each other and sharing knowledge and practices across disciplines. In Hilary Term 2017, the TEP Fellows ran a series of 'Ideas Exchange' sessions open to all Trinity staff on the topics addressed in this toolkit, and on 24 April 2017, they held a day-long event called 'The Long Table' that focused particularly on issues around assessment. This period entailed a great deal of individual research and reflection about issues in higher education, and identified examples of innovative practice already happening within our university. The TEP Fellows envisioned that a concrete output that collected these insights in one place, in an accessible language and an easy-to-use format, would be useful to the community.

Contents and Authorship

Each resource can be used on its own as well as in tandem with the others. Interested colleagues should feel free to download and explore the resources one at a time, or to select the area most relevant to them. Each resource had a lead author, identified below, but the project is a collective output of the TEP Fellows and Trinity Teaching and Learning. All resources include concrete examples of current practices.

General Topic Areas

Graduate Attributes (Daniel Faas)
Enabling a Programme Approach to Assessment (Cicely Roche and Ciara O'Farrell)
The Role of Reflection in Learning (Cicely Roche and Ciara O'Farrell)
Capstone Projects (Nicholas Johnson)
Thinking Independently: Embedding and Assessing Creativity in the Curriculum (Michael Wride)

Assessment Toolkit

Self-Assessment (Michael Wride)
Peer Assessment (Michael Wride)
Posters in Teaching, Learning & Assessment (Michelle Share)
Extended Written Assessments (Nicola Marples & Nóirín Nic A'Bháird)
Short Answer Assessments (Nicola Marples & Nóirín Nic A'Bháird)
Group Work and Practical Assessments (Nicola Marples & Nóirín Nic A'Bháird)

Future Agenda

The TEP Fellows are continuing to develop research and resources in this vein, so ideally the toolkit will continue to grow, reflecting and sustaining the renewal of the Trinity undergraduate education. At present, the resources are available only digitally; this allows for easy updating, but to extend their impact around and beyond Trinity, a print version is under discussion. Ideas for further resource documents are welcomed, as is feedback about the utility of those currently available. Enquiries about this project should be referred to Dr. Ciara O'Farrell or any of the TEP fellows listed above.

Acknowledgments

The TEP Fellows were supported in their development of these resources not only by one another, but also particularly by Ciara O'Farrell (Trinity Teaching and Learning), Fedelma McNamara (Project Manager, TEP), and Chris Morash (Vice Provost). We are grateful to all workshop attendees and to colleagues for their input.

Graduate Attributes

• What are Graduate Attributes?

Graduate attributes are 'the qualities, skills and understandings a university community agrees its students should develop during their time with the institution' (Bowden et al., 2000). Such attributes are usually achieved over time, within and beyond the traditional curriculum, and over the whole of the University experience, for example through participation in the social community of the university, or through co-curricular activity (Barrie, 2007).

• Why do we need Graduate Attributes?

It is acknowledged in the research literature that the increased complexity of learning needed by the 21st Century graduate cannot be adequately assessed though examinations. Traditional assessment practices do not equip students for the assessment challenges they will face as graduates or for learning throughout their lives. Assessment *can* be a powerful enabler to prepare our students for a lifetime of learning. To do this it must build our students' capacity to learn for themselves and to assess the learning of others, enabling them to take ownership of their own learning. This encourages students to be participants in assessment practice instead of just being its objects. Assessment for lifelong learning rewards students' ability to reflect on and critically evaluate their own learning, and to assess the quality of their performance against agreed standards.

• What Graduate Attributes do we promote at Trinity?

There are four graduate attributes at Trinity: (1) to think independently, (2) to communicate effectively, (3) to act responsibly, and (4) to develop continuously. Two of these — 'to develop continuously' and 'to act responsibly' — have been termed 'wicked competencies,' recognizing that they cannot always be reliably assessed (Knight and Page, 2007). Wicked competencies are a mixture of attitudes, practices and understandings.

• How can we assess Graduate Attributes?

Summative assessment (e.g. exams) works well in evidencing cognitive domains of attributes or skills (such as 'to think independently'), but it is less successful in assessing the softer competencies that relate more to values, attitudes or metacognitive abilities (such as 'to develop continuously'). This, however, does not mean that wicked competencies lie beyond assessment. Many sit at programme level and are often the products of years rather than weeks of learning (such as developing a global perspective, or being capable of adapting to change). Nonetheless, they can also be assessed at module level, and it is thus important to give the attributes a discipline-based focus. It is therefore crucial to realize that graduate attributes can be achieved and measured not only in the traditional credit-bearing curriculum, but also in the non-credit bearing co- and extra-curricula over the whole of the University experience (such as summer work placements, internships, volunteering).

• Why is there a gap between beliefs and practices?

A study conducted across Australia found that although 73% of academic staff surveyed believed graduate attributes were important, there was a substantial difference between beliefs and actual emphasis reported in practice. Academic staff were always more willing than they were confident to teach and assess graduate attributes. In addition, they were also most likely to report an emphasis on graduate attributes that may be considered conventional to their discipline. Overall, gender (identifying as female), industry experience and teaching qualifications played a role in impacting both willingness and confidence to teach and/or assess selected graduate attributes. Supporting academic staff to enhance levels of willingness and confidence is therefore core.

Examples of Assessment Techniques

• Example 1: Presenting, reflecting and peer assessment in AHSS

Students were asked to deliver a short PowerPoint presentation in their seminar group on a topic of their choice. They critically discussed one presentation delivered by a fellow classmate and ultimately wrote an essay on their presentation topic. Assessment criteria for the presentation included (a) content, literature and argumentation; (b) delivery skills; and (c) response to, and reflection on, peer critique. The discussant was assessed/self-assessed by being asked to reflect on their engagement with the topic of the presenter, their capacity to critically evaluate somebody's work, and their ability to move classroom discussion further on.

• Example 2: Presenting, reflecting and peer assessment in Science

Students worked in small groups to research a breakthrough in science. The project was presented in the form of a play, poem, game show quiz, film, puppet show, etc. The assessment was an 800-word essay summarising the science and a 200-word self-reflection on the process of carrying out the assignment, including problem solving, creative thinking and working in the group. Students were involved in grading each other's presentations, following a discussion with them about the criteria.

• Example 3: Discipline focus of Graduate Attributes

This assessment focused on the Professional Development learning outcomes. Students were assessed by submission and presentation of a photograph they had taken on their mobile phone: an image that represents professional practice and teaching and learning. Using their photograph as a catalyst, each student reflected on their experiences of professional placement and presented for five minutes to the class and a panel of assessors. In this presentation they describe their photograph, how their learning from the module has informed their beliefs and practices about teaching and learning, and how it will influence their future role as professionals.

• Example 4: Assessing the 'wicked competencies' in Nursing

JS nursing students were asked to undertake a short, structured reflection, including an annotated bibliography comprised of an outline of a literature search and critical summaries of three published research studies that related to a chosen problem. The structured reflection and the annotated bibliography received one-to-one peer feedback, in response to student presentations during tutorials. The majority of learning was independent, supported by peer feedback; lecturers did not provide direct feedback. An ethical awareness was demonstrated by the choice of appropriate topic, and students built confidence by taking measured risks.

• External Resources

Barrie, S. (2007) 'A conceptual framework for the teaching and learning of generic graduate attributes,' *Studies in Higher Education* 32(4): 439-58.

Bowden, J., G. Hart, B. King, K. Trigwell, and O. Watts. (2000) *Generic capabilities of ATN university graduates.* Canberra: Australian Government Department of Education, Training and Youth Affairs. http://www.clt.uts.edu.au/atn.grad.cap.project.index.html

De la Harpe, B. and C. David. (2015) 'Major influences on the teaching and assessment of graduate attributes,' *Higher Education Research and Development* 31(4): 493-510.

Kiley, M. (2009) *The national graduate attributes project: integration and assessment of graduate attributes in curriculum*, Australian Learning and Teaching Council.

Knight, P. and A. Page. (2007) *A study of the assessment of wicked competencies*. Open University.

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Enabling a Programme Approach to Assessment

• What aspect of TEP does this resource refer to?

The TEP assessment framework is underpinned by the recommendations that (a) assessment is 'programme-focussed,' (b) assessment supports the achievement of the Graduate Attributes, and (c) the use of a range of assessment practices equips students to apply their learning in contexts beyond the University.

• What is Programme-focussed Assessment?

Programme-focussed assessment establishes the full picture of assessments across a programme of learning. This enables (a) a planned and coordinated approach to the design and inclusion of assessments across a programme, (b) an appropriate range of assessments 'of,' 'for,' and 'as' learning, (c) evaluation of assessment(s) in an integrated and longitudinally oriented manner, and (d) collaboration between various contributors to the programme.

• Why use a Programme-focussed Assessment?

Modular systems are underpinned with a philosophy that learning can be broken down into quantifiable units with accompanying measurable learning outcomes, and that curriculum modules are discrete, independent units. One of its downsides is that it can result in fragmentation and incoherence of the educational experience. This is particularly true of assessment. Academics are likely to design assessments through the lens of the module rather than having a view of the whole programme of study encountered by the student.

A programmatic approach cultivates conditions for increased student learning by attending to sequence, timing and range of assessments, clarifying the interconnectedness of modules and viewing assessment as a linked series of learning opportunities across the whole programme (Jessop, Hakin & Gibbs, 2014). It provides an opportunity to assure that assessment across a programme is 'fit for purpose' in relation to the programme outcomes, and that graduate attributes are assessed in a systematic manner.

• What are the benefits to teaching and learning?

Programme-focussed assessment encourages students and academics to experience their programme as a cohesive and coherent whole. Whilst protecting academic standards in a valid and reliable manner, assessment should play a key role in engaging students and stimulating learning. Assessment has different purposes: (a) Assessment OF learning (to demonstrate achievement), (b) Assessment FOR Learning (to give feedback on learning and teaching), and (c) assessment AS Learning (to self-regulate and critically evaluate).

Programme-focussed assessment can facilitate a move from the current strong focus on assessment *of* learning, and towards assessment *for* and *as* learning. A programme-focussed approach increases opportunities to assess graduate attributes. By spotlighting duplication and supporting integration of assessment(s), this approach also creates space for a range of assessment types, e.g. reflection on learning, independent project work, group work, field trips, and other forms of individual and collaborative learning.

• What are the pedagogical challenges?

Programme-focussed approaches generally assume that (a) programme level outcomes exist as standard; (b) module learning outcomes and assessment are mapped to programme outcomes; and (c) contributors all review and critique the programme's assessment strategy on an ongoing basis. Variation(s) in assessment literacy amongst contributors and students may add to challenges when attempting to agree what constitutes assessment and feedback. Some possible approaches and examples of best practice are discussed on the reverse.

Examples of Possible Approaches

A 'programmatic approach' presents assessments and feedback 'as a linked series of learning opportunities across the whole programme' (Jessop et al, 2014:76). The literature recommends a consultative approach, so that programme mapping is a catalyst for reflection and collegial dialogue (O'Neill, Donnelly, Fitzmaurice, 2013). Professional development is an important enabler (Irish Professional Development Framework, 2016). A stepped approach might be considered, as outlined below.

• Initialising a 'Programmatic Approach': Programme Mapping

This initial 'assessment mapping' process supports a team-based approach to review of existing assessments in the context of programme outcomes, in order to clearly identify what is currently 'going on' in the programme. (See six Irish case studies in relation to programme mapping at the National Forum [2017] link under 'external resources.')

Phase 1 Targets:

- Where programme aims/outcomes/values are available, review these to identify what types of assessment approaches might be supported.
- Establish the number and type of assessments for each module in the programme.
- Agree a glossary of applicable terminology, to assure a shared understanding of references to assessment (and feedback) in this mapping process.
- Identify assessment records available from official sources, e.g. SITS/CMIS.
- Identify additional assessments specified in student handbooks, and/or websites.
- Verify the accuracy of identified assessments with Module coordinators/assessors.
- Map each assessment to both module and programme learning outcomes. Where programme outcomes do not exist, subject outcomes may be an appropriate alternative.
- Identify timing and sequencing of assessments across the programme.
- Engage students in review of the assessment map.

Phase 2 Targets (may run concurrently with Phase 1):

- Identify and analyse the 'lived experience' of students, e.g. survey and focus group(s).
- Present analysis to the programme team.
- The team then identifies gaps, duplication(s) and an appropriate range of assessments to enable ongoing development assessment (Jessop et al, 2014; Brunton et al, 2016).

• External Resources

Brunton, J., M. Brown, E. Costello, & E. Walsh. (2016) 'Designing and developing a programme-focused assessment strategy: a case study,' *Open Learning*, 31(2):176–87. Available at: http://www.tandfonline.com/doi/pdf/10.1080/02680513.2016.1187593?needAccess=true

Irish Professional development framework: http://www.teachingandlearning.ie/wp-content/uploads/2016/09/PD-Framework-FINAL.pdf

Jessop, T., Y. El Hakim, & G. Gibbs. (2014) 'The whole is greater than the sum of its parts: a large-scale study of students' learning in response to different programme assessment patterns,' *Assessment and Evaluation in Higher Education*, 39:73–88.

National Forum. (2017) *Enhancing Programme Approaches to Assessment and Feedback: Case-Studies, Tools and Commentaries.* Available at: www.teachingandlearning.ie

O'Neill, G., Donnelly, R. & Fitzmaurice, M. (2013) 'Supporting Programme Teams to develop sequencing in higher education curricula.' *The International Journal for Academic Development (IJAD)* 19(4):268–81.

Transforming the Experience of Students through Assessment (TESTA) Resources. Available at: https://www.testa.ac.uk

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The Role of Reflection in Learning

• What is reflection?

Reflective practice is a deliberate way of thinking that leads to change in action (Dewey, 1933; Schön, 1983). In the context of education, reflection can help students to consolidate and assess their learning of a discipline and its practices. The development of reflective skills and the process of engaging in reflective practice also prompts self-learning and encourages the integration of academic knowledge with relevant personal and professional experience.

• Why is reflection a desired Graduate Attribute?

It is widely recognised that our graduates are entering a 'supercomplex' world where they will be confronted with problems or challenges that are often described as 'wicked,' 'messy,' or 'indeterminate' (Knight and Page, 2007). Throughout their careers our graduates will be expected to understand how they work and perform, to play to their strengths, to identify and work on their weaknesses, and to plan their professional development through reflecting on and adjusting their practice. 'To develop continuously' is thus an important graduate attribute linked to reflection. The ability to reflect is also a precursor to and enabler of Trinity's other graduate attributes: to think independently, to act responsibly, and to communicate effectively.

• Why is reflection challenging for students?

Reflection is more than just thinking about a subject; it needs to draw from query and enquiry. However, many students entering University are 18–20 years old, and their ability to reflect, let alone capture that reflection in writing, is rarely developed by this stage of their education. Struggling with the very concept, their reflections can be descriptive rather than critical. There is also a risk that they will write what they think their assessor will want to hear. The development of reflective skills needs to be supported and scaffolded by appropriate teaching methodologies and assessment strategies. Ideally reflection should be introduced early in the programme, so students can practice and develop their reflective writing skills. Careful curriculum planning, with a programme focus, is required.

• How can we assess reflection?

Research highlights the need for reflective assessments to be contextualised to the post-graduation context (Boud and Falchikov, 2006). It is important to connect the reflection to learning or program outcomes, so that students know why they are being asked to reflect. When devising criteria, it can help to assess the *process* of reflection and not the *product*. To help students understand what this reflection might look like, rubrics should be shared with them in advance and discussed in class. It might also be useful to discuss some models of reflection within class (such as Gibbs's reflective cycle, Boud's experiential learning, Kolb's learning cycle, or Mezirow's transformational learning).

• Embedding reflection into our teaching, learning, and assessment

Reflective writing	Learning journals/diaries Memos Reflective notes Critical Incident Technique Critical Portfolio; ePortfolio Reflective self-evaluation Reflective peer evaluation	
Diagrammatic representation	Concept maps, mind maps, and conceptual diagrams	
Creative representation	Pictures/images Story writing Videoing/film-making	
Perspective taking	Stakeholder/service user views Reflective interview	
Interaction	Peer or group-discussion Problem-based learning Service user involvement in teaching	Morrow, 2010 (adapted)

Examples of Possible Approaches

• Example 1: Dr. Cicely Roche, School of Pharmacy

Final-year pharmacy students undertaking a module on Addiction Pharmacy attended weekly two-hour workshops with a range of experts on addiction pharmacy, and posted a short reflection on each workshop to their online journal within six days. The integrated nature of the series of workshops facilitated bringing practice to students in a manner that supported an experiential learning component to the development and demonstration of competencies related to reflective practice. The series of reflections drove "real time" student engagement with the workshops. Rubrics were developed to align with attributes underpinning reflective practice, namely: (a) reflective depth, (b) professional concepts and links with the role of the pharmacist in managing drug misuse (content and context), (c) expression (attention to clear, concise and evidence based expression). (See Roche, 2014, available at: http://www.mdpi.com/2226-4787/2/2/175/htm. Includes rubrics as appendices).

• Example 2: Prof. Mark Faulkner, School of English

Reflective writing exercises have been an invaluable part of modules that students encounter in their first year of an English degree, when making the transition from school to university. In particular, reflective writing:

- Helps students take ownership of the course material
- Helps students to see the originality and validity of their own ideas when their perception might be that there is a monolithic 'right' answer
- Gives regular practice at writing
- Can be used to inform the topics emphasised in tutorials
- Provides indirect but often very useful feedback for convener and tutors on how the course is proceeding

In the first-year module that has made the most extensive use of reflective writing, students were asked to make a weekly post to a discussion board hosted on Blackboard. The prompt was kept deliberately open: to write 200 words about something they had found interesting from that week's lecture. Posts could be read by all members of a particular seminar group, and students were encouraged to comment on each others' posts. Each tutorial teacher could read the week's posts before the tutorial and use them to decide what to emphasise. This learning journal contributed 10% of the student's overall mark for the module, with students told that a full set of posts would earn them a grade of 70, and that additional marks were available for commenting substantively on other students' posts.

• Example 3: Hannah Kilgore, Office of the Vice-President for Global Relations

The Visiting Student Blogger Programme recruited several bloggers per term, and bloggers either served for a semester, summer or year, depending on how long they were studying at Trinity. They provided three blogs per term, which were posted on the World of Trinity Blog: https://tcdglobal.wordpress.com/category/study-abroad/. By the end of Hilary Term 2017, there were sixty-four blogs. Blog topics have included both academic and non-academic subjects, with wide-ranging foci. It benefited students by providing them with the tools to better articulate and think critically about the benefits of studying abroad, important skills for students to develop. The bloggers also gained professional experience useful for their future careers, i.e. professional experience for CVs and job applications, samples for writing portfolios, and promotion of their photos and writing through Global Relations social media accounts.

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Capstone Projects

• What aspect of TEP does this resource refer to?

The 'capstone' — though defined differently by different subjects — is the common element across all exit routes. In all subjects, it requires a significant level of independent input by the student. It should allow students to synthesize their learning across the programme and deploy the knowledge that they have developed across a range of subject areas and across their four years of study.

• What can a capstone project be?

For disciplines that are more writing- and research-focused, the 'capstone' is often synonymous with a 'dissertation,' a long research paper that investigates a specific area of scholarship in-depth. For disciplines that develop learning through multiple modes — perhaps including field work and placements, laboratory experiments, or independent creative projects — writing may be only a component of the capstone. A capstone is a catalyst to enable students to reflect on their learning from the programme as a whole. It can stimulate academics to generate new and creative ways of assessing beyond module boundaries. Departments have broad leeway to define the nature of the capstone project that is appropriate to their programmes of study, within the 20 ECTS available in the project.

• How do we measure a capstone project?

The credit value of the capstone is 20 ECTS, according to the common architecture. This represents 400-500 hours of *student* input on the project. This works out to between 16 and 21 hours per week, if calculated only on the basis of two twelve-week teaching terms; it works out to between 7 and 10 hours per week, across 52 weeks. It may help in structuring the capstone to plan for 'heavy' weeks, where it may be a full-time focus for students, and the 'light' weeks at different times of year.

• What are the benefits to teaching and learning?

From a pedagogical perspective, the capstone project aligns with many of the Trinity graduate attributes. As these attributes are the product of years (rather than weeks) of learning, the capstone provides a chance for students to demonstrate their achievement of them as they transition out of college. It provides an opportunity for students to work and think independently, to self-motivate and take responsibility, and to communicate effectively in the tools of their own discipline. Students who have completed substantial independent work as part of their degree tend to be more employable, as well as more prepared for further advanced study; a capstone thus increases the value of the Trinity degree.

• What are the pedagogical opportunities?

Reflecting on what a student might need to succeed at a capstone project will require a review of independent learning opportunities at earlier points in a given pathway. As part of a wider shift in college to programme-focused rather than module-focused assessment, this type of thinking is beneficial. Additionally, the broader terminology of 'capstone' as opposed to 'dissertation' helps departments to think more creatively about what might constitute such a project in a given field.

• What are the pedagogical challenges?

While students doing a large number of credit hours independently may free up some teaching resources for small departments, in large departments there would be anxiety around the question of group vs. individual supervision (both are options). Some possible solutions and examples of best practice are discussed on the reverse.

Examples of Possible Approaches

• Division of Module

If 20 ECTS seems like a large credit value to allocate to one module in a given programme, or if there is concern about students' readiness for a large amount of independent learning in the final year, offering a taught component within the 20 ECTS capstone — such as a 5 or 10 ECTS research skills/methods module that would be a compulsory part of the project — is one option. However, if dividing the credits, it is strongly recommended to put all components of the capstone track in the final year only (SS, not JS). This avoids difficulty with progression and aligns with the Trinity Global Relations Strategy, encouraging students to retain the flexibility to go abroad in third year without impact on their exit routes.

• Fieldwork/Research Component

Some disciplines may find it useful to encourage students to put in a certain number of hours during the summer preceding the SS year, for example in courses where fieldwork or long lead times might be involved in research. This could, again, be given a certain weighting with credit hours, or could be assessed by delivery of some evidence of summer independent research at the start of the academic year. Again, this component could be specifically weighted (5 ECTS, 25% of capstone project mark, etc), to encourage students to start projects early, and identify issues needing work in their independent research practice from the start of the academic year. Collaborating with subject librarians and coordinating with training opportunities within the Library is also highly recommended; the Library has shown willingness to engage with departments on capstones on the research skills aspects, including taking on teaching hours with students. A number of pilot projects are underway.

• 'Cohort' supervision

Some disciplines have already found it useful to coordinate some group supervision opportunities, to reduce the amount of one-on-one time required, as this supervision model will not be possible in every department (due to size). One example might be to stage two to three hours of full-group teaching around discipline-specific generic independent research skills, then monthly cohort meetings of six to ten students (depending on how many each academic has in supervision). This not only eliminates repetition of generic advice, but also creates a sense of community around the independent researchers, so they can, at times, help their peers without requiring direct supervision.

• Multi-modal Capstone Projects

Some disciplines may wish to review existing advanced sophister modules, to determine whether they already include projects as part of assessment that could, themselves, qualify as capstones and be 'tracked' in that way. Additionally, independently proposed research projects that blend practical elements, placements, or laboratory activities alongside written elements can also be considered, in light of available supervision and available resources.

• External Resources

See alternative best practice examples and downloadable resources at the following links:
University of New South Wales, Australia: https://teaching.unsw.edu.au/capstone-project
Higher Education Authority, United Kingdom: https://www.heacademy.ac.uk/project/rethinking-final-year-projects-and-dissertations-creative-honours-and-capstone-projects
Professor Mick Healy (including case studies & downloadable bibliography): http://www.mickhealey.co.uk/resources

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Self-Assessment

• What aspect of TEP does this resource refer to?

Self-assessment is one type of assessment within the range of assessments of the TEP assessment framework. It can help prepare students for life-long learning, through reflection on their skills and competencies. Such assessment activities enable the development of transferrable skills and graduate attributes in students and make them explicit in the context of their programme of study.

• What is self-assessment?

Self-assessment is defined as 'the involvement of learners in making judgements about their achievements and the outcomes of their learning' and 'identifying standards and/or criteria to apply to their work and the extent to which they have met these criteria and standards.'

• Why use self-assessment?

Self-assessment is one of the most important skills that students require for future professional development and life-long learning. It develops the capacity for students to be assessors of their learning and promotes student engagement in, and learning about, a subject through expressing understanding, making decisions, and justifying judgements. It also helps students reflect on how they view themselves as learners in terms of self-esteem and self-image.

• What are the benefits to teaching and learning?

Self-assessment is a natural extension of a change from a teacher-centred to a student-centred mode of education, which emphasises the active engagement of students in their learning. It enhances deep and lifelong learning and makes students feel that they have some control over their own evaluation, while developing learner autonomy, cognitive abilities, metacognitive engagement, better understanding of content, and increased quality and thoughtfulness on assignments.

• What are the pedagogical opportunities?

Through self-assessment, there is an opportunity to engage students in the 'assessment dialogue,' as there are many tacit assumptions that staff make in marking student work, which are not obvious to students who perceive it as part of a 'hidden curriculum.' Students can be integrated into the assessment process, and that process can be made more explicit, by providing some training in assessment and/or including students in developing assessments.

• What are the pedagogical challenges?

Students can be reluctant to self-assess, since they feel they lack the necessary skills, confidence, or ability to judge their own work; they prefer and expect to be assessed by experts and see it as the teachers' responsibility. Thus, they are afraid of being 'wrong' or are too harsh on themselves, and are sometimes uncomfortable with the responsibility. Cultural issues can impact on self-assessment, because for some students, giving themselves a good grade is considered inappropriate or boasting. There is also the issue of how one identifies the 'self' in 'self-assessment.' It involves one part of the self-assessing, but also another part of the self's actions and outcomes: 'it raises some deep questions about the nature of the self, self-awareness and self-monitoring.' Finally, it may encourage the internalisation of accountability and may be linked to notions of surveillance and social control.

Examples of Possible Approaches

• Assessing the current extent of self-assessment activities

Schools and/or disciplines may wish to undertake a review of existing assessment practices to ascertain the extent to which self-assessment is already being used in their programme(s). The relative proportions of formative and summative self-assessments already taking place should also be determined, and the extent to which this is 'in class' compared to 'on line' ascertained. Curriculum review should include considerations of how to practically implement self-assessment strategies; e.g. by re-assessing content-heavy modules and promoting flipped-classroom approaches, to free up space for self-assessment activities in-class.

• Desirable conditions for fostering self-assessment

Successful student self-assessment requires both effective implementation and management. It should be a purposeful and systematic approach integrated into course/module design. The effectiveness of the approaches needs to be monitored through reflecting on the process and the outcomes by both students and academic staff. Staff should spend time preparing students for self-assessment.

• Good practice in self-assessment

Self-assessment functions optimally when student perceptions are considered, and when there is a clear rationale that is discussed with students, with the process evaluated and modified accordingly. Staff need to be willing to share control of assessment: students are involved in establishing criteria, have a direct role in influencing the process, and guidelines are produced for each stage of the process. Self-assessment is one of a number of complementary strategies to promote self-directed and inter-dependent learning that comes to permeate the whole module/course.

• Some simple ideas to implement self-assessment

Self-assessment of coursework essays using criteria-referenced approach in psychology: Criteria asked students to assess the extent to which the question was addressed, organization and structure, quality and relevance of argument, depth of understanding, evaluation of theoretical concepts, and research evidence.
Self-assessment in first-year sociology: Marking criteria were included in handbook; teacher feedback was provided without a grade, after which students self-assess and resubmit; bonus marks awarded for accuracy of staff versus student marking.
Self-assessment of essays by students of a foreign languages: Assessment criteria negotiated between tutor and students, followed by self-assessment carried out in two rounds.

• External resources

Wride, M.A. (2017) 'Guide to student self-assessment.' Academic practice and eLearning (CAPSL) Resources. University of Dublin, Trinity College. http://www.tcd.ie/CAPSL/assets/pdf/Academic Practice Resources/Guide to Student Self Assessment.pdf

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Peer Assessment

• What aspect of TEP does this resource refer to?

Peer assessment is one type of assessment within the range of assessments of the TEP assessment framework. During peer assessment, students review and provide feedback on each other's work and learn *from* and *with* each other: this is assessment *for* learning, not assessment *of* learning. Examples of peer assessment including grading a peer's research report, providing qualitative feedback on a classmate's presentation, or evaluating a fellow trainee's professional task performance. Such assessment activities enable the development of transferrable skills and graduate attributes in students and make them explicit in the context of their programme of study.

• What is peer assessment?

In peer assessment, students make decisions about each other's work and decide what constitutes 'good work.' This can be done anonymously, randomly, individually, or in a group. Peer assessment and the learning that emerges from it fit into social constructivist models of education. Peer assessment can occur 'in class' or 'on-line' and can be formative and/or summative.

• Why use peer assessment?

There are great opportunities and advantages in terms of understanding and engagement to learners providing feedback on and assessing each other's work. Using and/or developing assessment criteria takes students deeper into their learning and allows for feedback and reflection on learning and the sharing of what new meaning appears individually and within the group.

• What are the benefits to teaching and learning?

Peer assessment is a natural extension of a change from a teacher-centred to a student-centred mode of education, which emphasises the active engagement of students in their learning, learner responsibility, metacognitive skills, and a dialogical, collaborative model of teaching and learning. Students become assessors within the context of 'participation in practice,' i.e. the kinds of highly contextualised learning faced in life and work. Peer assessment can also dramatically reduce the marking load on academic staff and allow them to devote more time to other aspects of teaching and learning, including managing the peer assessment process itself more effectively.

• What are the pedagogical challenges?

Feedback to students alone is insufficient to promote learning. There can be concerns about quality in terms of effectiveness, acceptability, fairness, validity, reliability, accuracy, and value of student assessments. Students can be concerned and anxious about lecturers/tutors being absent from the assessment process and about the emotional impact of giving and receiving feedback among peers.

• What are the pedagogical opportunities?

Through peer assessment, there is an opportunity to engage students in the 'assessment dialogue,' as there are many tacit assumptions that staff make in marking student work, which are not obvious to students who perceive it as part of a 'hidden curriculum.' Students can be integrated into the assessment process through this mode, for example by providing some training in assessment and/or by including students as contributors to developing assessments. For example, it can help to engage students in discussions about — or, more radically, to help develop — marking criteria that are aligned with the learning outcomes.

Examples of Possible Approaches

• Assessing the current extent of peer assessment activities

Schools and/or disciplines may wish to undertake a review of existing assessment practices to ascertain the extent to which peer assessment is already being used in their programme(s). The relative proportions of formative and summative peer assessments already taking place should also be determined, and the extent to which this is 'in class' compared to 'on line' ascertained. Curriculum review should include considerations of how to practically implement peer assessment strategies, e.g. by re-assessing content-heavy modules and promoting flipped-classroom approaches, to free up space for peer assessment activities in-class.

• Desirable conditions for fostering peer assessment

Desirable conditions include: considering and highlighting knowledge and experience; emphasising value in cooperation and the roles involved; establishing trust; discussing student and staff expectations; agreeing on the process; encouraging reflection and reflective discussions; tolerating mistakes and seeking assistance; discussing and acknowledging previous negative (and positive) experiences with similar activities; providing and considering practical suggestions for how to change attitudes; addressing issues of 'difference,' e.g. gender, local vs overseas students, culture and religion. In general, students need to accept each other for peer assessment to be effective.

• Some simple ideas to implement peer assessment

Formative: Students' draft assessments can be shared with peers and questions can be developed by the students. The ensuing discussion, in pairs or in small groups, enhances learning through exploration of the questions. Students then peer-edit and provide feedback on rounds of drafts of the assessment shared between them in small groups. The criteria for feedback (produced by the lecturer or developed collaboratively with students) are provided. The work under discussion is then compared to the grading criteria; students gain an idea of what merits work of varying degrees of quality. Students submit a piece of writing online (e.g. essay, blog, response) individually or in groups, and then they receive feedback from peers and revise it accordingly. Lecturers should also provide 'feedback on the feedback' that students have given each other, i.e. a quality assurance role on the part of the tutor, implemented to reassure students of fairness and to acknowledge any student concerns and provide reassurance.

Summative: Any of the above formative assessment strategies can be extended to lead into a summative peer assessment. Students then grade each other's work, and the lecturer oversees the grading as quality control, and/or staff and student marks split 50:50. Any marks where student and lecturer grades differ significantly are discussed.

• External resources

Wride, M.A. (2017) 'Guide to student self-assessment.' Academic practice and eLearning (CAPSL) Resources. University of Dublin, Trinity College. http://www.tcd.ie/CAPSL/assets/pdf/Academic Practice Resources/Guide to Student Peer Assessment.pdf

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Posters in Teaching, Learning, and Assessment

• What aspect of TEP does this resource refer to?

This resource supports the TEP Assessment Framework recommendations:

- graduate attributes are assessed explicitly in the undergraduate curriculum;
- a range of assessment practices equips students to apply their learning in contexts beyond the University.

• Why use posters in teaching, learning, and assessment?

Posters go beyond traditional assessment methods such as exams or essays, to give students an opportunity to show publicly the product of their learning through text, images and oral communication. As a group activity, posters support collaboration and peer learning. Students can not only demonstrate knowledge on their topic, but also show skills and confidence in design and communication of their work to a wider audience. Ideally, such an opportunity should be provided early in an academic programme, so that students can scaffold later learning. Key benefits for students include:

- development of skills in researching, writing, publishing and communication
- creating opportunities for interdisciplinary learning
- demonstrating the graduate attribute 'to communicate effectively'
- modelling a real-world, authentic assessment
- enhancing a valuable skill for future employment or further study

• What are the challenges?

- Students may have no experience of making posters and may see it as a burden.
- Such a teaching and assessment method requires planning. Time must be allowed for students to:
  - learn to work effectively in groups;
  - learn how to design a poster;
  - seek and process the feed-forward they have received on their first draft.
- Faculty will need time to:
  - create an effective assessment rubric relevant to the module learning outcomes;
  - organise a team of assessors (colleagues, postgraduates, professionals in the field);
  - secure institutional facilities and support with set-up of poster exhibition.

• What is the faculty role in helping students to develop posters?

- **Helping students to understand the task:** It is important that students understand what they are being assessed on and why.
- **Preparing students to work effectively in groups:** Students may have different perspectives on group work. It is best not to assume they have been prepared to work effectively in teams. Time should be allocated to allow students to develop effective group work processes, and faculty may need to facilitate them in this.
- **Preparing students to design effective posters:**
  - It is best not to assume that students already know what an academic poster is, or its purpose — faculty will need to help students to learn about effective poster design;
  - A poster template and physical example should be shown in class;
  - An FAQ webpage can be very helpful in preparing to respond to questions;
  - Students need to understand that to design an effective poster takes time and revision;
  - A deadline for the draft submission for feeding forward should be set (at least one week before the poster event, depending on how many posters one needs to respond to);
  - Comment boxes on a .PDF version for each poster can be used for 'feed-forward';
  - A general feed-forward message on how to address common issues can be provided;
  - It is best to advise students where/how to get the poster printed.

Preparing for the Assessment Event

• Helpful questions to ask and issues to prepare for

- ❖ Do you have access to poster boards? You may need to hire these, so consider costs (and who will pay), and when and how they are going to be set up and taken down.
- ❖ Do you have an appropriate space for the poster event? You may need permission from estates & facilities/security to use public foyers or corridors (e.g. fire escape routes).
- ❖ Poster boards will need to be numbered and allocated to groups; students will need nametags (proper nametags will greatly enhance the professionalism of the event).
- ❖ Students need to be advised that the poster assessment event is compulsory and should be considered in the same way as an examination. They will need to sign-in (you may need someone to help with this) and attend for the duration.
- ❖ Provide the poster assessors with a briefing, a clipboard, a nametag, copies of the assessment rubric and details on the groups to be assessed.
- ❖ Provide some refreshments for the event.

• What is being assessed?

What precisely is being assessed is an area needing careful consideration. There are many useful rubrics available, but it is best to ensure that any established criteria align with the learning objectives. For example, an assessment could consider:

- ❖ coverage of the topic
- ❖ innovation and presentation in the poster
- ❖ how students handled questions from assessors
- ❖ overall presentation

A key decision is whether to allocate group marks only, or both group and individual. Individual marks could be assigned based on a written reflection of learning (submitted within three days of the event). This can examine the utility of the assessment from the student's perspective and role, as well as how they collaborated in the project. For example:

- ❖ how each member contributed in relation to the student's own contributions, and how issues were resolved; what one might do differently in a future group-based assessment;
- ❖ how useful the assessment was for developing the student's knowledge about the topic;
- ❖ what new skills were learnt;
- ❖ perspectives on the public assessment.

• External Resources

Better posters (blog): http://betterposters.blogspot.ie
CAPSL. (nd) 'Posters.' https://www.tcd.ie/CAPSL/TIC/guidelines/assessments/posters.php
Hess, G.R., K. Tosney and L. Liegel. (2006) 'Creating effective poster presentations.' http://www.ncsu.edu/project/posters
Ladd, R. (nd) 'Designing an effective poster.' Health Sciences Library, U. North Carolina. http://guides.lib.unc.edu/c.php?g=8592&p=44025
O'Neill, G. and D. Jennings. (2012) 'The use of posters for assessment: a guide for staff.' UCD Teaching and Learning Resources. https://www.ucd.ie/t4cms/UCDTLA0039.pdf
Poster Perfect: http://www.the-scientist.com/?articles.view/articleNo/31071/title/Poster-Perfect/
Colin Purrington's (excellent, comprehensive and amusing) poster tips: http://colinpurrington.com/tips/poster-design

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Extended Written Assessment

• What is an extended written assessment?

Extended written assessment methods include essays, project work, practical reports, literature reviews, blogs, annotated bibliographies, and reflective writing. The writing can be descriptive, technical, or critical, and it can be presented in a formal or informal style. Written assignments, when well designed, can assess a range of graduate attributes and can markedly improve the engagement of students with course material. Writing is a skill which, with sustained practice, can develop all of the graduate attributes that we value in Trinity: to think independently, to communicate effectively, to act responsibly, and to develop continuously. In undertaking a writing task, students are prompted to think deeply about a topic, to address/interrogate their understanding, and to examine the learning process itself. Writing is a tool for thinking, and the act of writing generates ideas. As a result, students are better able and more willing to engage in discussion, further improving and developing their learning. For these reasons written assignments have been designated as a 'high-impact educational practice' which have been shown to improve student learning across the curriculum. The parameters being assessed in written tasks should be aligned with the learning outcomes of the module and of the programme, and students should be clearly informed of what is being assessed.

• Contents

This document outlines some types of written assignments currently in use in College, addressing advantages, disadvantages, assessment criteria, and recommended approaches to successfully designing such assessments. Each type of assessment has been given its own page, and some include practical examples provided by colleagues. This document will include discussion of:

- essays
- literature reviews
- blogs
- reflective practice
- journals
- project write-ups
- annotated bibliography

• External Resources (General Writing)

University of Wisconsin-Madison, 'Writing Across the Curriculum.' https://writing.wisc.edu/wac/
Trinity College Dublin (CAPSL), Trinity Inclusive Curriculum, 'Written Work.'
https://www.tcd.ie/CAPSL/TIC/guidelines/assessments/written-work.php
University College Dublin, Teaching and Learning. http://www.ucd.ie/teaching/
University of Leicester, Leicester Learning Institute. https://www2.le.ac.uk/offices/lli

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Extended Written Assessments

Essays

• About Essays

Essays are generally a form of critical writing displaying a wide range of academic skills, which explains their continuing popularity as an assessment method. An essay presents the author's thesis supported by appropriate references from the literature. A good essay demonstrates a student's ability:

- to understand the precise task set out by the title
- to identify appropriate references to read
- to analyse and evaluate the reference material
- to construct and present a cogent argument based on the reference material
- to set out a well-supported conclusion
- to structure the essay to best convey the arguments and to support the conclusions
- to demonstrate these abilities within a set word limit

Advantages: Essays can…

- assess all levels of learning objectives
- encourage original thinking
- display students' depth and breadth of understanding of a subject
- develop analytical and critical skills

Disadvantages: Essays are…

- time-consuming to write and to mark
- necessarily subjective when it comes to marking
- difficult terrain in which to detect certain types of plagiarism
- subject to variable writing skills, which may affect clarity of presentation

Design concerns: It is important to…

- inform students of the assessment criteria, including guidelines on grammar, spelling, etc.
- ensure that there is no ambiguity in the title or question
- clarify terms such as 'compare,' 'evaluate,' 'critique,' etc.
- use essays to assess high-level learning, rather than to use where simpler forms of assessment might suffice

Assessment criteria for essays include:

- understanding of the essay topic
- relevance to essay topic
- clear and effective presentation of an argument
- use of appropriate supporting material
- references and bibliography included

• External Resources

University of Leicester, Leicester Learning Institute, 'Writing Essays.'
http://www2.le.ac.uk/offices/ld/resources/writing/writing-resources/writing-essays

Extended Written Assessments

Literature Review

• About Literature Reviews

A literature review is a comprehensive review of the existing literature on a particular topic. It includes a critical evaluation of the theories, methodologies, research findings (assessments and evaluations) and presents a synthesis of the published work on the topic. It differs from an essay in that it presents the current analysis of a topic, rather than presenting the author's own opinion on the topic.

A literature review may be preparatory to a research project, in which case the review highlights gaps in existing knowledge, outlines the problem to be addressed, and suggests potential research methodologies.

Advantages: Literature Reviews can…

- encourage deep learning and engagement with the topic
- develop research skills, analytical skills, and communication skills
- develop many graduate attributes, such as time management and project management

Disadvantages

- training of students in research and analytical skills is resource-intensive
- necessary feedback to students is time-consuming
- selection of appropriate material for review can be challenging/daunting for students
- requires that the instructor has deep and extensive knowledge of a range of research areas

Assessment criteria

- clear outline of the aim of the review
- appropriate selection of a range of sources of current literature on topic
- critical analysis of material presented
- conclusions reached are justified
- research questions suggested arise logically from review

• External Resources

University of Melbourne, "Literature Reviews" Homepage.
http://unimelb.libguides.com/c.php?g=402756&p=2740804

Blogs

• About Blogs

Blogs are an informal, diary-style piece of writing that is hosted on the web and is available to view and comment on by the lecturer, classmates, and occasionally by the public. The informal style of blogs is attractive to students, and the pedagogical benefits are visible in an increase in interactive and reflective practice. The capacity to comment on others' blogs results in collaborative learning and increased engagement and interaction with the material. Blogging can increase reflective practice by students, which further increases engagement.

Design

- learning goals and outcomes should be very clearly defined
- the requirements for frequency, length, content and assessment criteria should be explained
- guidance on writing and commenting on a blog should be provided

Advantages: A blog can…

- increase reflective thinking
- increase collaborative learning
- encourage critical thinking
- promote respect for others' views
- improve communication skills
- encourage constructive criticism

Disadvantages: Some students may…

- not engage
- predominate in discussions
- express controversial, politically or factually incorrect information
- comment in a personal way or be over-critical of others' work

Assessment

Assessment criteria for blogging should generally consider the focus and engagement of students with the topic. The best blogs display critical thinking, engagement, and self-reflection.

• External Resources

Luján-Mora, S. and S. de Juana-Espinosa. (2007). 'The Use of Weblogs in Higher Education: Benefits and Barriers.' *Proceedings of the International Technology, Education and Development Conference (INTED 2007)*, p. 1-7. http://desarrolloweb.dlsi.ua.es/blogs/use-of-weblogs-in-higher-education-benefits-and-barriers

Keesee, G. (2010) 'Welcome to the Wonderful World of Wikis and Blogs.' Fayetteville Technical Community College. PowerPoint presentation: http://teachinglearningresources.pbworks.com/f/Wake_up_wikis_blogs.ppsm

Extended Written Assessments

Reflective Practice Writing

• About Reflective Practice Writing

Reflective practice is a form of assessment in which students reflect on their own learning by analysing their personal engagement with a subject in terms of performance, understanding, response and development. Typically, a student reflects on a completed piece of work or project and charts the learning process throughout. In the case of group work, a student considers their individual contribution, their interaction with group members and the resultant effect on the learning process and outcome.

Advantages: Reflective practice can…

- promote engagement by student with topic
- encourage deep learning
- develop meta-cognitive skills
- provide feedback on course design
- be suitable for all types of learners, due to the flexibility of format

Disadvantages

- some students may not be entirely honest in their reflection
- some students dislike the personal nature of the writing and are concerned about confidentiality
- time-consuming to write and to assess
- objective and consistent marking can be challenging

Design Issues

- clear guidelines on content, length and assessment criteria are essential, especially for students writing a reflective piece for the first time
- purpose and benefits of reflection must be clarified
- feedback to students is essential

Assessment

- clear description of the process, experience, activity etc. is provided
- response to experience is outlined
- critical evaluation of response to experience is delineated (motivation, values, assumptions)
- effect of experience on the student's learning is provided

• External Resources

University of Leicester, Leicester Learning Institute, 'Reflective Practice Assignment.' https://www2.le.ac.uk/offices/lli/developing-learning-and-teaching/assessment-and-feedback/copy19_of_case-studies

University of New South Wales, Sydney, 'Examples of Reflective Writing.' https://student.unsw.edu.au/examples-reflective-writing

Levett-Jones, T.L. (2006) 'Facilitating reflective practice and self-assessment of competence through the use of narratives.' *Nurse Educ Pract.* March, 7(2): 112–9. https://www.researchgate.net/publication/6151032_

Examples of Learning Journals and Reflection

• Example 1: Dr Carole Holohan, Assistant Professor in Modern Irish History

'I've had very positive experiences using learning journals in the past. They work best when a substantial weighting is given to them in terms of the overall assessment for the module (I've given 20% and 40%). The learning journal is designed to help students reflect on the weekly reading and engage fully with the course. It allows students to prepare for class discussion and helps develop their analytical and writing skills. It also helps students identify areas and issues that are unclear or difficult and these can then be addressed in class. It takes a certain amount of effort each week from students, but in my experience they have found it extremely helpful in keeping up with the course. Each week students wrote short responses (minimum of 500 and maximum of 800 words) to the readings and documents provided and submitted them via Blackboard in advance of class. I provided them with a learning journal template that contained a few general questions, such as 'what arguments emerged from the readings?'. The journals were discussed in class — as everyone had done the reading, generating discussion was much easier. Pointing out the positives of work in individual journal entries helped draw out students who don't normally contribute to discussion.

About halfway through term, I met with each student to give them some feedback on their journal. This obviously works best for smaller groups, but if the journal was worth a lesser amount, it could be used for larger groups also. Students submitted their weekly journal entry to Blackboard in advance of the class and at the end of the semester submitted all the entries in one word document, with a reflection/statement on their progress over the semester. In the reflection they identified what they had learned and how their own skills and understanding had developed over the previous weeks. I've had very positive responses from students with this assessment method and would highly recommend it.'

• Example 2: Dr Nicholas Johnson, Assistant Professor of Drama

'The Department of Drama places substantial weight on regular submission of reflective writing, and no practical course (acting, directing, or devising in particular) exists that does not also require reflection as a substantial proportion of the mark. SF Theatre Laboratory classes, in which students create a research-led performance, are generally assessed 50/50 between practice and written reflection. Other courses where the emphasis is more practical might be 60/40 or even 70/30. The use of reflective writing is scaffolded throughout the degree, where JF and SF students might keep regular "field notes" or "journals" throughout a class like Introduction to Performing as a formative assessment, and then be asked to draw on those insights for a final marked submission. Rather than Blackboard, we have tended to use www.turnitin.com, because functions like GradeMark — especially the voice comment feature, by which the lecturer can instantly respond with up to three minutes of recorded speech — has proved to be a more personable (and effective) way to respond to reflective writing.

The criteria we use in Drama to assess this type of work has a lot to do with the balance between documentation and analysis. We ask for: 1) evidence of *ongoing* application to the process of reflection and analysis; 2) insight and thought applied to the acquisition of personal technique and the function of the creative process; 3) attempt to draw connections between class concepts and experience outside the studio, as practitioner, spectator, or member of society; 4) range and depth of engagement with required reading or other outside research; 5) adoption of a constructive analytical stance that does not get stuck in superficial notions of "failure," "success," "enjoyment," or "dislike," but instead seeks to pose and respond to more productive questions about process and theatre-making; 6) focus on open-minded growth and acquisition of a personal technique, not the ongoing exercise of opinion. Standard essay criteria still apply: we expect articulation, organisation, and citation.'

Extended Written Assessments

Project Write-ups

• About Project Write-ups

A project write-up describes how a student carried out an experimental, lab-based project. The write-up must describe the research aim of the project, the background to the research area, techniques and data analysis methods used, results obtained, interpretation of results, significance of results, future work that extends the current project, and references used. The description of the project must allow others to repeat the work by following the procedures described.

Advantages: Project Write-ups can…

- develop critical and analytic thinking
- synthesise theoretical and practical skills
- challenge students to describe their own work
- develop time- and project-management skills
- engage students deeply in a topic

Disadvantages: Project Write-ups can…

- be time-consuming
- require a high level of supervision
- have the unpredictable outcomes of experimental work
- mislead students that the results obtained are more important than the learning process itself

Assessment

- aim of project is clearly delineated
- review of literature is comprehensive
- research questions arise logically from the review presented
- rationale for selected methodology is clear
- results are clearly presented and critically analysed
- conclusions are appropriate
- bibliography is accurate

• External Resources

University of Exeter, Department of Physics Handbooks, 'Guide to Writing a Project Report.'
https://newton.ex.ac.uk/handbook/PHY/forms/WLB010919-4.pdf

Extended Written Assessments

Annotated Bibliography

• About Annotated Bibliographies

An annotated bibliography is a review of the published research on a given topic presented as a list of references, with an accompanying summary included with each entry. The summary (100–200 words) is a brief description giving the aims, methods and conclusions of the work. The relevance of the work to the topic is then discussed. In terms of generating research and sources of material for a longer work, especially in the process of writing a dissertation or extended essay, a submission of an annotated bibliography can be a useful interim stage, and it is required in a number of departments as a 'precursor' to a capstone project. In building study skills and citation practice generally, it can be a useful exercise on its own.

Advantages: An Annotated Bibliography can…

- encourage deep learning and engagement with a topic
- develop research skills, analytical skills, and communication skills
- develop graduate attributes around the areas of time- and project-management

Disadvantages: An Annotated Bibliography can be…

- resource-intensive, due to the depth of research and analytical skills involved
- challenging for students to accurately and concisely summarise material
- challenging or daunting for students to select appropriate material for review
- require deep knowledge of a broad range of material on the part of the instructor

Assessment

- summaries of texts are accurate
- summaries highlight the most important and relevant conclusions
- selection and range of sources of current literature on the topic are appropriate
- critical analysis of material is presented
- conclusions reached are justified

• External Resources

University of New South Wales, Sydney, 'Annotated Bibliography.'
https://student.unsw.edu.au/annotated-bibliography

Short Answer Assessment

• What is a Short Answer Assessment?

A 'short answer' type assessment may take the form of multiple-choice questions, hand-marked short answers, or clicker questions (which may or may not be credit-bearing) in the course of a lecture. MCQs and short answers can be used in any context, for example after watching a video, hearing a podcast, doing a practical, during lectures, or as end of semester exams in place of essays. As well as being much quicker to mark than essays, they extend the range of module content tested, preventing students from learning only part of the module. It is also possible to give automatic feedback on wrong answers if the quiz is done in Blackboard.

• General Tips

It is wise to think ahead about structuring questions in a way that leads to faster marking. For example, it can help to make sure that all short answers are in units that divide into 10, as it speeds up marking to mark them out of 10 in the end (i.e. 2, 5, or 10 parts to a question). Where it doesn't reduce the difficulty of the question, it can be worthwhile to ask students to respond with single letters or numbers (indicating the answer they have chosen from a list), rather than writing full words or phrases, as this approach enormously reduces marking time.

• Definitions

- **Multiple Choice Questions (MCQs):** Problems with suggested answers, one of which is correct.
- **Hand-marked Short Answers:** Questions designed to be very quick to mark, but which currently require hand-marking. They may take a number of forms (see below).
- **Clickers (+/- credit bearing):** Hand-held device or smartphone app used to answer MCQs during a lecture. The response can be linked to Blackboard and marks can be retained, if desired.

• Strengths and Weaknesses

- **Multiple Choice Questions:** MCQs are useful to test knowledge of facts, but tend to be less useful for exploring concepts. They can be computer-marked, so are suitable for very large classes. Because the correct answer is given as one option, the student's task is reduced to recognition of the correct option. However, the difficulty level can be raised by making the 'wrong' answers familiar-sounding, or encompassing commonly made mistakes. It is possible to give two answers (both of which are right) and then include 'both a and b' as a possible answer. More than four optional answers can be given, so such combinations of correct answers can get complicated. There are many other ways to raise the difficulty level illustrated in this online resource: http://www.historyteacher.net/MCQuestionStems.pdf

- **Hand-marked Short Answers:** These give the setter more freedom with question design. If carefully designed to minimise marking effort, they are ideal for very large classes to test both understanding of concepts and recall of factual information. Even if discursive parts are only included for smaller class sizes, these are still quicker to mark than essays. One approach is to have a table of definitions, or scenarios, and a separate jumbled list of terms or concepts that each illustrates. The student has to recognise the concept and put the appropriate term into the table next to the right description. This can be made harder by adding distractors to the list of terms that are incorrect for any definition.

• Strengths and Weaknesses (continued)

- **Hand-marked Short Answers (continued):** Another approach is to give the student sentences discussing a particular topic, with alternative words in bold that they can select. It is tempting to use a true/false question here, but it is optimal to use three or more answer options if possible (e.g. larger/smaller/the same size), or a student can get 50% by pure chance. A freer (and harder) form of this is simply to have a piece of text discussing a concept, but to leave out crucial words or terms to be filled in by the student. This must be very carefully designed, or it can be very hard to work out what the sentence should have been, and any ambiguity leads to the question being unfair. To avoid this problem, students can be given an extended word cloud (including many unused words) to choose from, and so any ambiguous options can be left out from the word cloud.

  Another option is to provide a figure, graph, equation or illustration and ask the students to fill in missing parts or label features on the figure. Supplementary questions can then follow the graph referring to other aspects of that particular piece of work.

  The most discursive approaches can be kept relatively short by limiting the number of words allowed for the answer. Such questions would ask for a definition of a concept, for instance in ten words. Some students will ignore the word limit, so in those cases it can be written in the instructions at the start of the question that the instructor will read only the first ten words, and give the mark on those. Finally, the '10 parts' for these questions (as advised above) can be made up from a combination of these various idioms. **Examples** are provided below.

- **Clickers (+/- credit bearing):** Clickers can be used to enhance learning in the course of lectures, and to give the lecturer immediate feedback on whether the students have grasped a concept. If connected to Blackboard, they can give marks to each student, and thus can be used as a form of assessment too. Often they are most useful for providing a pause in the lecture, so that the students stop and engage with a difficult concept and understand an underlying complexity they might otherwise miss. One approach is to explain the concept, then offer the students a question exploring an aspect of that concept, with alternative responses listed for them to choose. The incorrect responses are arranged to be slight misunderstandings of the concept, so all appear at least plausible. Students can be asked to discuss with a neighbour for no more than a minute, and then vote on their jointly preferred response. Another approach is to wait until about half the students have responded, then ask the others to respond in the next 10 seconds, by counting down the final 5 seconds. The graph of responses is then revealed, and the instructor can then explain why the wrong responses are not correct, before continuing the lecture. Each clicker question takes about 5 minutes out of the lecture time, so generally a lecture will not fit more than four questions. The new app-based clickers allow the quiz to be left open for a day or two, allowing students to complete it in their own time. **Example clicker questions** can be found below.

Note: This document is not a statement of formal university policy, but rather a teaching and learning resource produced by the Trinity Education Fellows for the Trinity Education Project.

Examples of Short Answer Questions

Below, the document provides examples of actual short-answer questions used by lecturers in Trinity College Dublin.

• Table of scenarios/definitions

For each of the descriptions relating to personalities or behavioural polymorphisms in the table, insert the letter denoting the relevant term. Terms can be used once, more than once, or not at all.

a: Hawk, b: Dove, c: bourgeois strategy, d: anti-bourgeois strategy, e: war or attrition, f: bold shy continuum, g: fast slow continuum, h: male-mimicking, i: gentes, j: negative frequency dependent selection, k: assortative mating, L: heterozygote advantage, m: producers, n: scroungers, o: predator inspection

Description	Letter
A strategy in which you play the dove strategy when owning a resource, and hawk when the invader	
A strategy in which you play the hawk strategy when owning a resource, and dove when the invader	
A personality type in which small fish approach a predatory fish in order to learn about it and show off to females	
Individuals that learn to open puzzle feeders and so supply others with the food they contain	
Personality trait indicating likelihood to approach a novel object such as a fish trap	
Long lasting competition for a resource in which an unpredictable giving up time is the best policy	
One mechanism by which two strategies can be maintained in a population because increase of one strategy reduces the fitness of that strategy	
A mating strategy for small males who can't fight for a territory so much sneak matings	
The sub-groups of cuckoo females allowing them to specialise their eggs to a particular host species	
A strategy for gaining food by using another individual to open a puzzle feeder for you	
A mechanism for maintaining two strategies in a population because breeding between individuals of different strategies produces fitter offspring	

Examples of Short Answer Questions

Below, the document provides examples of actual short-answer questions used by lecturers in Trinity College Dublin.

• Sentences with gaps: Type 1

Circle the correct option from those words printed in bold, or supply the missing terms:

1) Monogamous species are **more likely/less likely/equally likely** to go extinct than polygamous species.
2) This is partly because females, given little choice of mate quality, **increase/reduce/ don't change** their investment in breeding that year.
3) Dichromatic species are **more likely/less likely/equally likely** to go extinct than monochromatic species.
4) Strong sexual selection **improves/reduces/has no effect on** the survival of a species compared to species with little sexual selection.
5) The …… ……. is the name given to the detrimental effects of small population sizes, which helps explain why some abundant species go extinct.
6) Small populations experience **reduced/increased/unchanged** mating probability.
7) One way to alleviate problems of small populations is to **clump/divide/overpopulate /select** the population.
8) One method often used to achieve this employs **distractors/decoys/defenders/ compilers.**

• Sentences with gaps: Type 2

From the word cloud, select words to complete the sentences below.

Wildlife, daybreak, temperature, seasons, growth rate, nutrients, insects, extent, predict, secondary substances, aspects, existence, breeding, winter, determine, daylength, evolution, indicators, adjust, bud-burst, over-wintering, output, timing, know, extrapolate, altered, cancel, CO_2 levels

1) Phenology is the study of the …… of animal and plant behaviour.
2) Insects must hatch just after …… when the young leaves have fewer …… in them.
3) Insectivorous mammals and birds must time their breeding so that the peak in their young's …… coincides with the peak insect productivity.
4) With climate change, the timing of these events is ……, but not to the same extent for each species.
5) Some species …… their timings to compensate, but this is difficult because different species use different triggers for their behaviour: Insects use …… to decide when to hatch, trees use …….. to decide when to start growing.
6) If migration is involved, prediction of food availability in the ……areas must also be done from the …… areas, giving even more scope for mis-timings.

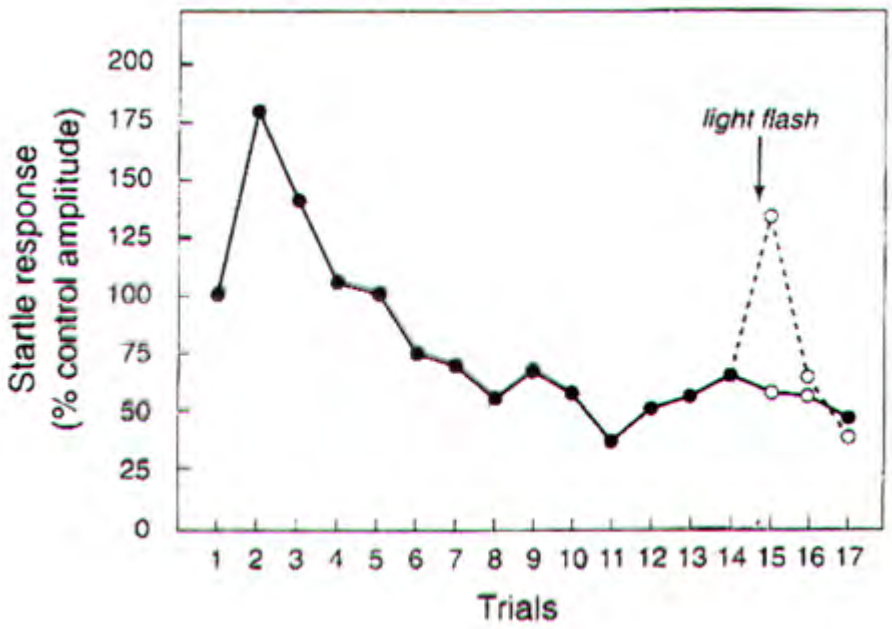
Examples of Short Answer Questions

Below, the document provides examples of actual short-answer questions used by lecturers in Trinity College Dublin.

• Figure-based Questions

The graph shows the startle response of a rat to a loud noise, and how it changes over a series of trials. Mark onto the graph the areas which show

a) Habituation
b) Dishabituation
c) Rehabituation
d) Sensitization



e) Circle the correct answer:

What did the light flash do to the rat's response to the loud noise?

a. Sensitized the rat to the noise
b. Dishabituated the rat to the noise
c. Rehabituated the rat to the noise
d. Habituated the rat to the noise
e. Nothing, it was a different cue.

Examples of Short Answer Questions

Below, the document provides examples of actual short-answer questions used by lecturers in Trinity College Dublin.

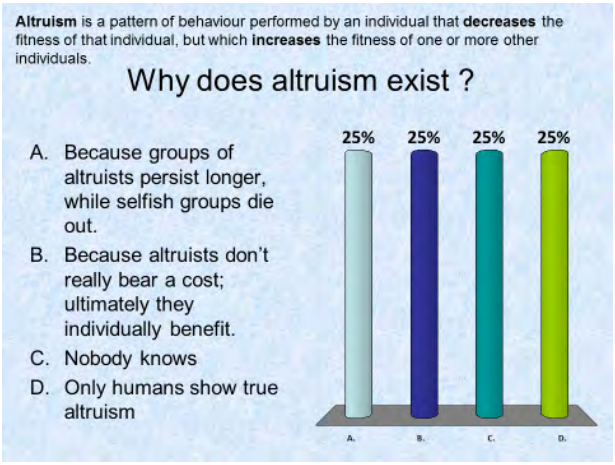
• Word-limited Answers

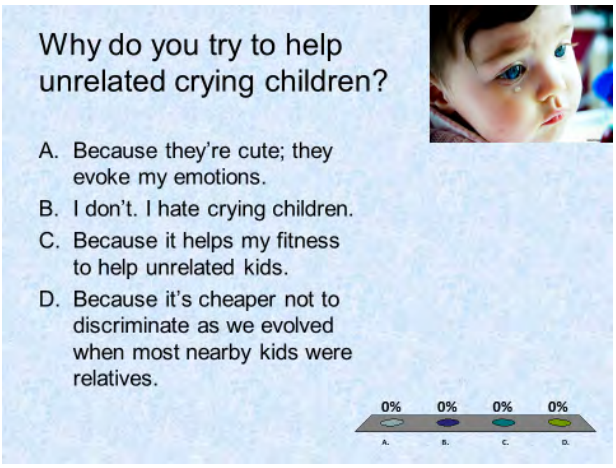
For each of the anthropogenic disturbances listed in the table, provide a wild species which is affected and a brief description of the problem arising. Problem descriptions must not exceed 20 words. **NB you will only receive marks based on the first 20 words you write in each section.**

Disturbance type	Species affected	Problem description
Hunting		
Light pollution		
Water turbidity		
Sound pollution		
Introduced predators		

• Clicker Questions

Don't shy away from humour!





Group Work & Practical Assessment

• What is Group Work Assessment?

Group work '…is formally termed cooperative learning, and is defined as the instructional use of small groups to promote students working together to maximize their own and each other's learning.' (Johnson et al., 2008).

Informal group work involves small temporary groups working together for short periods on specific problems typically during class-time. These approaches may include active learning methods such as think-pair-share, peer instruction and jigsaws.

Formal group work takes place over a longer time in which students complete a joint task or assignment and in which the social interaction contributes to the outcome of the project. Groups of 2 -6 students of differing abilities are formed. Roles may be assigned e.g. manager, scribe, sceptic, educator, conciliator and these roles may rotate.

• General Design Tips

It is important to articulate the learning outcomes, both academic and social. It is worthwhile to place emphasis on how both cooperation and individual accountability are important, and how each will be assessed. Instructors are usually involved in selecting heterogeneous groups and assigning roles. Guidelines on ground rules for the group should be provided, as well as deadlines, assessment criteria, the format of the completed project, and how it is to be presented. progress must be regularly monitored, with feedback and suggestions for progression provided.

• Advantages: Group work can…

- Develop collaborative skills
- Encourage independent thinking
- Develop self-directed learning
- Develop critical thinking and analysis
- Develop oral and written communication skills
- Accustom students to working in heterogeneous groups

• Disadvantages: Sometimes…

- Individual contributions may vary
- Some students may dominate the process, with shy students reluctant to participate
- Learning outcomes may not be obvious to students
- Assessment of individual contributions may be challenging
- Disagreements may sometimes escalate to personal attacks
- Non-fluent speakers of English may be at a disadvantage

• Online group assignments

For online group work, collaboration takes place online, allowing the instructor to monitor individuals' contribution to the process. Online group work is facilitated by an online word processor such as Google Docs, which allows users to modify documents online, or by a website such as wiki, that allows collaborative modification of content directly from the web browser. References providing a good overview of online group assignments are listed below.

Group Work & Practical Assessment

• Assessment Considerations

In general, both the product of the group work, such as a presentation, and the learning processes involved in generating the product, are assessed. A presentation may be assessed based on standard academic criteria reflecting the learning outcomes. In assessing the process, consideration may be given to individual student effort as well as to the group's effort, and it may include self-assessment and peer-assessment.

Specific criteria for process assessment are listed below:

- Performance of group roles
- Negotiation and leadership skills
- Problem-solving skills
- Response to feedback and criticism
- Conflict management and resolution
- Time- and project-management
- Contribution to group
- Completion of assigned tasks

• External Resources

Johnson, D.W., R.T. Johnson, E.J. Holubec. (2008). *Cooperation in the Classroom* (8th ed.). Edina, MN: Interaction.

Carnegie Mellon University, Eberly Center for Teaching Excellence and Educational Innovation, 'What are the Benefits of Group Work?' https://www.cmu.edu/teaching/designteach/design/instructionalstrategies/groupprojects/benefits.html

Online Group Learning Resources

Online Learning Insights: A place for learning about online education (links below):

https://onlinelearninginsights.wordpress.com/tag/how-to-create-group-assignments-for-online-courses/

https://onlinelearninginsights.wordpress.com/2014/08/14/how-to-make-group-work-collaborative-in-online-courses-four-strategies/

Problem-based Learning (PBL)

• What is problem-based learning?

Students work collaboratively in small groups to identify and solve problems in a real-world scenario. Students learn principles and concepts by direct interrogation of the situation, rather than through the presentation of facts by an instructor.

Advantages: PBL can…

- Develop collaborative skills
- Encourage independent thinking
- Develop self-directed learning
- Develop critical thinking and analysis
- Synthesise theoretical and practical learning and application
- Develop oral and written communication skills

Disadvantages: Sometimes…

- Individual contributions may vary
- Some students may dominate the process, with shy students reluctant to participate
- Learning outcomes may not be obvious to students
- Assessment of individual contributions may be challenging
- Some students perceive the process as an unwelcome delegation of the role of the instructor to the student

Design concerns: It is important to…

- Articulate the learning outcomes of the project to ensure that they align with the module and programme learning outcomes
- Select the problem scenario with care, ensuring that it resembles situations that students may encounter in their careers or future lives (or alternatively that the problem selected is relevant to the student's discipline, e.g. clinical case study)
- Establish ground rules for participants
- Provide regular and timely feedback
- Facilitate and encourage (as opposed to direct) discussion

Assessment of PBL can include self-assessment, peer assessment, and lecturer assessment. Criteria may be problem-specific, such as identification of problem, possible resolutions, or underlying principles. Holistic criteria such as contribution to group, completion of assigned work, and sharing new information with the group can also be assessed.

• Example: Dr Mark Faulkner, School of English

'Problem-based learning has been variously defined, but it is most often seen as involving students working collaboratively to solve open-ended, real-world problems. My enthusiasm for problem-based learning has a number of causes:

- My keenness that students should, as far as possible, see themselves as co-producers of knowledge
- Belief in assessment *for* learning, rather than assessment *of* learning
- Deep despair when confronted with a pile of exam scripts to mark, which, when marked, have no future beyond resting for several years in a filing cabinet prior to being shredded and pulped
- Awareness that there is an almost innumerable array of small tasks that would materially advance scholarship in my research area, which, with appropriate guidance, students could perform, the performance of which would help them both learn and demonstrate their learning.

Admittedly, I have so far only implemented problem-based learning in one module I have run (a second-year Old English module), but I have plans to implement it much more widely (particularly at masters level).

The principal learning outcome of this second-year Old English module was an ability to read, in their original language, with the help of dictionaries and grammars, texts in Old English (the variety of English spoken in Britain c. 500–1100 CE). It also aimed to give students an introduction to scholarship on those texts, and to put them in a position where they felt confident taking further modules, and perhaps writing a dissertation, in the same area. I designed a final assessment, worth 40%, that would assess this and other learning outcomes, at the same time as cumulatively addressing what I regarded as a desideratum in the field of Old English studies: a database giving basic information about the surviving texts to help undergraduate and graduate students and even early career researchers find their way around them.

Students were invited to choose a text to work on, with or without my guidance, either in line with their particular interests or (for the brave) entirely at random. Whichever text they chose, their task was to complete a template containing sixteen fields, assisted by extensive guidance on possible sources for the information. Completing the template required reading at least a portion of the text, consulting major scholarly resources in the field, and identifying, evaluating and summarising relevant secondary reading. They were told that what they submitted would in due course be published online.

The assessment produced some very strong work, and helped students transition from the safe world of the normalised language found in a textbook to the wilder climes of Old English studies at large. Two challenges are nonetheless worth flagging: (1) real-world problems are by their nature uneven in difficulty, and I was conscious of the difficulty of assessing fairly responses which, on the one hand, could treat an 80,000 word text, and on the other, a six-word inscription; (2) there remain to be resolved significant quality control issues if student work, with its inevitable uneveness, is to be presented as an academic resource.'

• External Resources (Problem-based Learning)

Macdonald, Ranald. (2005) 'Assessment Strategies for Enquiry and Problem-based Learning.' Sheffield Hallam University: http://www.aishe.org/readings/2005-2/chapter9.pdf

University of Illinois Urbana-Champaign, Center for Innovation in Teaching and Learning: http://citl.illinois.edu/citl-101/teaching-learning/resources/teaching-strategies/problem-based-learning-(pbl)

Journal Clubs

• What is a Journal Club?

A journal club is a group meeting in which students discuss and critically assess a research article or reference paper, selected by the instructor, that is relevant to their discipline. All students read the paper and one student leads the discussion using guidelines provided by the instructor. The learning goals of a journal club are generally to deepen the students' understanding of the topic and to develop critical thinking and analysis.

Advantages: A Journal Club can…

- Develop critical skills
- Develop collaborative learning
- Develop communication skills
- Keep students abreast of the latest research in their field of study
- Develop the ability to argue points well

Disadvantages: Sometimes…

- All members must engage in the process to achieve the best result
- It is time-consuming for both students and instructors
- Some students are reluctant to express an opinion due to lack of confidence

Assessment

Marks are generally awarded individually based on the student's contribution to the group. Leaders may be assessed on their presentation of the material and facilitation of the discussion.

• External Resources (Journal Clubs)

Sandefur, C. and C. Gordy. (2016) 'Undergraduate journal club as an intervention to improve student development in applying the scientific process.' *J Coll Sci Teach,* 45 (2):52–8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4874504/

Dahiya, S. and R. Dahiya. (2015) 'Class Room Seminar and Journal Club (CRSJC) as an Effective Teaching Learning Tool: Perception to Post Graduation Pharmacy Students. *The Journal of Effective Teaching*, 15 (1):69–83. http://files.eric.ed.gov/fulltext/EJ1060433.pdf

Example of Assessing Practical Work

The content below outlines a sample multi-stage practical assessment — from pre-practical assessment through to in-lab, post-practical, and written submissions — in terms of objectives, learning outcomes, format, resources, tips, and advantages/disadvantages. The content can be adapted for group or individual assessments. The sample comes from the teaching practice of Dr. Glynis Robinson, School of Biochemistry and Immunology.

• Pre-Practical Assessment

Objective: encourage students to prepare for laboratory sessions.
Learning Outcomes Assessed: knowledge of function and operation of equipment, knowledge of principles underlying techniques, demonstration of required numerical skills.
Format: online MCQ
Supporting Resources: typically presented on-line in Blackboard and including a video demonstration, background reading, and a practice MCQ test (with feedback). Students work through the on-line resources and then take an assessed on-line pre-practical test.
Tips: Build a question bank with groups of at least four alternative questions for each outcome assessed. Randomise the selection of the question from each group as well as the order in which they appear. This addresses the issue of students who take a test at the same time in order to share answers. Provide clear instructions re submission process and cut-off times/ date. Have a back-up hard copy version of the test for students who have a technical crisis.
Advantages: Pre-practical tests that require engagement with preparatory material can have a noticeable positive effect on student performance in the laboratory. Assuming a large question bank, on-line pre-practical tests allow for easy reuse of questions. Administration is minimal.
Potential problems: Initial building of the question bank and preparation of resources is labour-intensive. At the beginning of the academic year there are inevitably students who are not correctly registered on modules and consequently do not have access to Blackboard.

• In-lab Assessment

Objective: encourage active engagement in practicals
Learning Outcomes Assessed: technical competency, data display
Format: paper-based
Supporting Resources: may include live or pre-recorded demonstrations, hard copy laboratory manual, post-graduate demonstrator; at the end of a practical students submit data collected and processed during class
Tips: Keep the marking scheme simple, *eg:* 2 = student was there and did something. 4 = the data are good, 8 = the data are very good. Sample results should be provided to the demonstrators. Time permitting, the submissions are graded there and then. If the submissions are taken away they are returned the following week.
Advantages: In-lab submissions are a true measure of student performance (student has no opportunity to modify or add to results). In-lab submissions are an unequivocal record of attendance. The short turnaround time ensures timely feedback.
Potential problems: Some laboratory time may need to be sacrificed to allow the time required (typically 20 minutes) for students to process/present/calculate their data.

(continued below)

• Post-practical Assessment

Objective: assess achievement of the learning outcomes for the practicals
Learning Outcomes Assessed: higher level reasoning skills, interpreting data, integration and application of information and experience
Format: Can be hard copy submission or electronic submission. Questions require written answers that involve analysis and interpretation of unseen data or scenarios. At Freshman level, post-practical assignments are typically marked by postgraduate demonstrators; at Sophister level, academic staff mark the assignments.
Supporting Resources: online pre-practical resources, laboratory manual, student's own results, lecture notes as appropriate.
Tips: Publish clear instructions regarding file formats for electronic submission. Publish clear rules regarding plagiarism and the consequences of plagiarism. Marks available for individual questions or question parts should be published (guides students to a sensible division of their time). To ensure consistency of marking and provision of feedback supply marking schemes, model answers and a training day for post graduate markers.
Advantages: Submission and marking of assignments in Blackboard automates administration and grade calculations, allows for plagiarism detection and for monitoring of markers. Electronic submission facilitates feedback via cut and paste.
Disadvantages: Plagiarism will occur at Freshman level.

• Assessment of laboratory note books

Objective: encourage record keeping
Learning Outcomes Assessed: record keeping, communication skills, ability to display raw data in a meaningful way
Format: paper-based. Books can be collected weekly, at end of module, or collection can be unannounced and from randomly selected students.
Tip: ensure students understand the distinction between a notebook and a report/write-up.
Advantages: reinforces the importance of documenting laboratory work. Random selection keeps students focussed on record keeping.
Disadvantages: Collection at end of module is a mammoth task for large Freshman classes, does not allow for timely feedback, and the lab book may be an improved version of what actually took place. Inconsistency of marking can be a problem when there are multiple markers. Weekly collections necessitate that students have two books (one to use, one to be marked). Collation of marks with multiple markers and two books per student is unwieldy.

• Assessment of laboratory reports

Objective: Encourage reflection on a laboratory session
Learning Outcomes Assessed: observation, interpretation, reflection, communication skills
Format: may be electronic or paper-based
Supporting Resources: See post-practical assignment above
Tips: A blank template containing headings, explicit word limits and mark allocation facilitates the marking process and helps students to focus. Provide clear instructions as to rules applying in the situation where a student needs to/wants to use another student's results. See also post-practical assignment.
Advantages: See post-practical assignment above
Disadvantages: Plagiarism will occur at Freshman level. The report is not necessarily a true account of what happened. Postgraduate markers need very clear guidance.

Suggested weightings of practical and lecture components across a 5 ECTS module:
Total for pre-practical tests = 5%
Total for in-lab submissions = 5%
Post-practical (may contain several components) = 20%
The remaining 70% assigned to examination of lecture material.

Thinking Independently: Embedding and Assessing Creativity in the Curriculum

• What aspect of TEP does this resource refer to?

This resource relates to the TEP graduate attribute 'To Think Independently', which includes 'I can think creatively'. However, other aspects of the graduate attributes are also relevant; e.g. 'building confidence to take risks', 'adapting to change', 'synthesising evidence' and 'dealing with ambiguity'.

• Creativity and graduate attributes

Creativity is a key graduate attribute for career readiness. In an era of super-complexity and uncertainty, graduates need to be able to engage with colleagues and other stakeholders in creative dialogue so as to address the challenging issues that face both society and business. Students should gain the ability to collaborate to develop innovative solutions to existing and future challenges, such as so-called 'wicked problems' which are complex and multidimensional; e.g. climate change. In order to develop creativity as a graduate attribute, opportunities to develop it should be integrated into the curriculum through ensuring there is spare capacity in the system; e.g. spaces for reflection and communication (Knight, 2001; 2002).

• What are the benefits of creativity to teaching and learning?

Insight is associated with creativity - to see or understand something new that one has not seen or understood before. This relates to threshold concepts, which are essential for students to move to the next phase of their learning. Thus, creativity contributes to transformative education.

• Determining the current extent of creative teaching and learning activities

Schools may wish to undertake a review of existing creative teaching and assessment practices to ascertain the extent to which they are already being used in their programme(s). Curriculum review should include considerations of how to promote curriculum coherence to enable creative strategies. Space can be freed up in content heavy modules for creative activities and assessments (students need opportunities to practice new forms of assessment); e.g. through promoting flipped classroom approaches to provide essential content.

• What do we mean by students' creative work?

In considering students' creative work, we are not only considering the creative disciplines, such as drama, art, creative writing etc. We can promote and assess students' creativity in all disciplines. For example, a student's essay in science under exam conditions can be assessed for creativity, in terms of considering the novel ideas presented and the creative connections made.

• Why assess students' creativity?

Assessment of creativity is important, since students need to know the extent to which they are being creative in their work and how they can develop this personal and discipline-focused creativity. The National Forum for the Enhancement of Teaching & Learning in Higher Education (NFETL, 2016) has developed the concepts of assessment ***for***, ***as*** and ***of*** learning. As we move from assessment ***of*** learning towards assessment ***for***/***as*** learning, we can be more pro-active and creative in our approaches to enhancing learning through assessment.

Examples of Possible Approaches

• Desirable conditions for fostering students' creativity

Brookhart (2013b) states "We can assess creativity and, in the process, help students become more creative". Discuss with students what 'creativity' means to them. Discuss examples of creative products from the discipline and which pieces of work are like others (copies, replicas, imitations) and which ones surprised them or gave them a new thought or enabled them to notice something new. Students must recognise 'an original response' in themselves. Engage in metacognition: ask students to self-reflect/assess and discuss with each other how they can develop the current piece of work or make their next piece of work more original. Combine self-assessment, peer-assessment and teacher assessment during the process to provide meaningful feedback. Think about what kinds of assignments allow for the most student creativity. "Turn full stops into question marks" by asking open ended thought provoking questions! Create a 'safe space' and allow time for experimentation and taking risks and for the learning to be gained from failure.

• Ideas for activities to enable and enhance students' creativity

Students engage in discussion forums online: topics could be assigned by the lecturer or developed by students, then write a collaborative Wiki/Blog. Discuss the nature of discipline-specific creativity with students. Emphasise 'playing with knowledge' - ask questions encouraging the making of novel connections; e.g. what does the future look like in your discipline (future learning)? Enable students to present their learning creatively through creative writing, art, movies, quiz shows etc.

• Opportunities and challenges of assessment of creativity.

Assessment can be carried out on both the process and the products of creativity. Brookhart (2013a) developed a rubric for assessing creativity incorporating variety of ideas and contexts, variety of sources, combining ideas, and communicating something new. Each component is assessed according to whether it is 'very creative', 'creative', 'ordinary/routine' or 'imitative'. For 'combining ideas', the following descriptors are for 'very creative': ideas are combined in original and surprising ways to solve a problem, address an issue, or make something new and for 'imitative': ideas are copied or restated from the sources consulted. To promote assessment ***for*** and ***as*** learning, the creativity rubric can be discussed with students and then they can carry out self-assessment and/or peer feedback in a multi-stage assessment process. Students may also benefit from group work by working on creative projects together; e.g. problem based learning.

• About this document / further Information

This document is not a statement of formal university policy, but rather a teaching and learning resource produced by Academic Practice and eLearning (CAPSL) for the Trinity Education Project (Phase 3). For additional information or formal liaison about this topic, please contact Dr Mike Wride, CAPSL wridem@tcd.ie.

• External resources

Brookhart, S. M. (2013) Creativity Now: Assessing Creativity. Educational Leadership (2013) 70(5): 28-34

Brookhart, S. M. (2013) Rubric for Creativity. In: How to Create and Use Rubrics for Formative Assessment and Grading, p. 54. Alexandria, VA: ASCD. Copyright 2013 by ASCD.

Knight, P. (2001) Complexity and Curriculum: A process approach to curriculum-making, Teaching in Higher Education, 6:3, 369-381.

Knight, P. (2002) Notes on a creative curriculum. http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.465.6568.

NFETLHE (2016) Enhancement Theme 2016/18 Assessment OF/FOR/AS Learning http://www.teachingandlearning.ie/priority-themes/enhancement-theme-2016-2018/

Trinity Education Project: Resources

2. Resources available via Trinity Teaching and Learning

Academic Practice and eLearning (CAPSL)

CAPSL supports the professional development of academic staff and those supporting teaching and learning in Trinity throughout their career. They offer a wide variety of research-led programmes, workshops, consultancies and events in academic practice and eLearning, including a flexible academic postgraduate programme, the special purpose professional certificate in academic practice. They also showcase practice in Trinity through seminars and discussion fora led by academics from within the disciplines.

For a variety of resources on teaching, learning and assessment, please see the

CAPSL website at: http://www.tcd.ie/CAPSL/resources/

3. Resources available via Student Learning Development

Student Learning Development

Student Learning Development is part of the Counselling Service in Trinity College Dublin. Our role is to help students to enhance their learning and study skills via e-mail support, web resources one to one appointments and workshops (including group-based, online and podcasts).

We can help with academic writing, revision and exam strategies, time management, giving presentations, motivation, critical thinking and thesis writing and much more.

Student Counselling support for academic staff

Support academic staff in providing learning support to their students. When you give your students an assignment, an essay or ask them to prepare and deliver a presentation you can download our guides and other academic supports to distribute to them:

- Providing Learning materials
- Facilitating department-based workshops
  Depending on the group of students and what you are asking them to do we have resources developed specifically for undergraduates and postgraduetes:

- Undergraduate Learning materials
- Postgraduate Learning materials

  If you need any help related to Learning Support please contact us.