Anatomy of Assessment

Infographics

Faculty: Medicine
Department: School of Medicine
Module name: Clinical Science Integrative Cases (CSI)
Degree: MBBS
Level: Undergraduate (pre-clinical) Year 1-3
Approximate number of students: 400
Duration: 1 hour 15 minutes (tAPP)
Module ECTS: 10 (per year)
Module type: Core

Insights colour key

Educational Developer

Inclusivity

Learning Designer

Registry

Careers

This task focuses on processing information and putting it in a format that is understandable to a wider audience under a time limit. This is what medics are likely to do in their multidisciplinary teams when they move into medicine. While as medics, students rarely will be creating posters, they will be having to process the information into a format that is understandable to a diverse audience. In many cases, as employees, they will find themselves in a position having to influence others hence thinking about the audience and how to make information digestible is an important transferable skill to develop.

Assessment overview

This case study involves a group-based undergraduate (MBBS) summative assessment that involves creating an infographic within a tight time limit. These infographics address a certain medical topic. Students are made aware of the generalised topic of the infographic prior to the session, with pre-reading that is encouraged to be used. At the start of the session, all groups are given the same poster title, with the task to create an illustrative poster that addresses the topic and title. Students are given one hour to complete the poster. Posters are then assessed by examiners, and feedback is provided, at some time after the session.

This case study focusses primarily on the undergraduate (MBBS) summative assessment that occurs at the start of spring term in January; specifically it is part of the tApp Team Based Learning (TBL) provision, however, infographics is also part of postgraduate (MSc) formative assessment.

Design Decisions

Rationale for Infographics

This assessment is delivered as part of the TBL sessions and is linked to the tApp part of the TBL. You can find more information about the department's approach to TBL assessments.

The tAPP is considered the most important step of the TBL process. Typically, students should have the opportunity to apply, synthesis, analyse information and then make a specific choice from a range of options. Students would then be asked to justify their choice of response. This case study therefore represents a different approach to the tAPP stage of the TBL, but would still allow students to analyse and synthesise information and apply their understanding from the previous TBL stages to a real life situation.

The world is moving to a shorter attention span, with 'TikTok style short videos' and other social media providing easy, instant information to consumers. As a result, many people now benefit from convenient information that is attractive to digest. Educational use of infographics – easily digestible visualisations of information designed to impart knowledge with speed and clarity - therefore lends itself well to higher education as it consists of the creation of visually appealing media that permit rapid accumulation of information. Given the current trends, it is therefore highly relevant to teach students the skills needed to create such infographics.

Creating materials such as infographics can support students in synthesising information and translating it into an understandable format for a range of audiences.

This method of assessment is much more fun and engaging than some traditional assessment styles and incorporates genuine real-world skills of teamwork and creativity that are of benefit to the students beyond the degree programme.

Interviewee: Heather Hanna
Role: Senior Clinical Teaching Fellow

When introducing tasks with added time pressure it is important to consider students with learning difficulties. Some of those students don't feel comfortable to disclose this to the group and therefore might struggle to meet the pace and certain standards that others are imposing on them. Outside of making working in diverse groups part of group work preparation, there should also be mechanisms put in place to identify where groups are struggling and what support and adjustments could be put in place.

Tasks with time pressure can be useful if the ability to respond to tight deadlines is one of the learning outcomes of the module or an important soft skill that the module aims to develop. This is where this time pressure shouldn't be removed but rather students should be scaffolded to learn how to navigate around it. If this is not the case, then it is important to consider whether the short time frame unnecessarily puts additional stress on the students. Essentially the consideration should be given as to the value of creating a high pressure environment for student learning.

Requirement for a specific software and file type was introduced to create (some sort of) parity among students. Previously, students with better technical/visual skills would use advanced image editing software, therefore producing arguably more visually appealing outputs. Also, PowerPoint is available to all via the College subscription. Additionally, for this assessment, students use Faculty of Medicine issued iPads (all of the same specs), again to ensure (some sort of) parity.

Task Design

In this summative assessment, 32 groups are given the same title and task to create a poster surrounding the title's topic. An example of the task can be found below:

In this assessment you will work in your TBL groups to prepare an infographic targeted at medical students or health care professionals, to promote the use of language that builds confidence, trust and self-esteem in patients with diabetes and fosters a collaborative approach to self-care.

In groups, you will need to choose a specific target audience for your infographic (medical students or a specific group of health professionals e.g. doctors in training, GPs, school nurses etc.) and use the resources provided today, which you will recognise from your TBL preparatory reading. You should also draw on your experiences in the Language Matters diabetes workshop (on 10th January), demonstrating engagement with and reflection on the activities undertaken.

The infographic must be produced within Microsoft PowerPoint (NOT any other software) and must be created on an iPad (NOT a laptop). You must attribute (reference) any images, icons, quotes or statistics used.

Students are given 75 minutes to complete the task. This comparatively short amount of time is designed to create intense time pressure so students must work cohesively and delegate roles as necessary to properly complete the task. Students are asked to save the file as a PDF so that the document cannot be altered post-session; one student from each group submits the PDF file.

Students are asked to annotate their posters with speech bubbles to elucidate their choices on their infographics posters in relation to two things:
- to explain the key messages that they have chosen and to explain their thinking and rationale as to why these messages were chosen to reach their target audience;
- to describe the barriers that they can identify in reaching their target audience and how their infographic has overcome these barriers to engage them in behavioural changes that result in more collaborative language and interactions with patients with diabetes

Asking students to explain key messages and justify some of their choices very closely links to employability skills as it loosely asks students to defend their decision which is something they will have to do in a workplace.

There is a designated PPT file template created for the purpose of this task that all students should be using although they are given freedom in how they present their information.
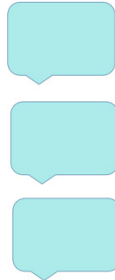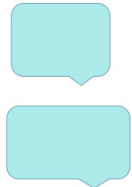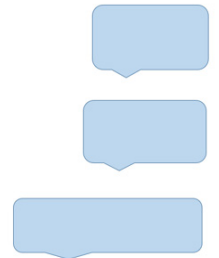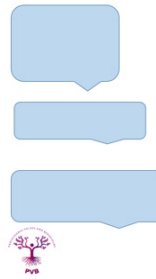
There is a strong visual component to these posters, compared to a traditional poster presentation at a conference, for example. No word limit is stated, as otherwise it may imply to students to try and cram as much information with those words as possible, which is not the focus of the task. The rationale is that in today's world, posters must be attractive to people, as well as be illustrated nicely in an appropriate colour scheme, so that they will want to go and read it. Having several paragraphs on a page will not achieve this.

Alignment with other assessments and the programme/ module
While there is no obvious direct link to other assessment forms, there are two instances where this assessment may indirectly influence other modules and assessments.

Firstly, there is some overlap with an aspect of the closed book exam at the end of the year, where students may be asked a question about appropriate use of language towards a patient. In this scenario, content taught during the 'Language Matters' teaching session (preliminary to the infographics assessment) may come in use to students.

More substantially, there is a design task in a later Year 2 module that involves students collaborating with students at the Westminster School of Architecture to create a functional, well-designed space, with a purpose that is contextualised within the module. One aspect of this module is the design and creation of a poster. The infographics exercise indirectly prepares and sets these students up well for the creative and illustrative aspects of that upcoming module, likely not only for the poster component but for the space designing component too.

Practicalities

Preparing students for assessment
Students get randomly allocated to groups prior to them commencing Year 1. In the past with this assessment, it was realised that teams did not work well because they had no understanding nor practical experience, as part of their undergraduate degree, of what makes a team

Infographics

With any type of assessment it is important that the students understand what they are expected to do and this is also the case with any kind of group work. It is crucial to outline to students how the team is expected to work together, especially in environments where students need to successfully work together under time pressure. Getting students set the ground rules in advance is sensible so that they can establish a way forward. See this case study for ideas how this can be successfully achieved.

The most important principle when considering any assessment type, especially a more innovative one is ensuring that it is clear to the students what they are required to do in order to successfully meet the learning outcomes either by getting over the threshold and a pass mark or by what they must do to achieve the higher marks.

function. Up until that point, teamwork was a tacit skill – nobody had sat the students down and explained to them the roles that make up a team. Teams would get held up at stages where they did not work as well they expected; they lacked the understanding that it is normal for teams to not function perfectly at every moment, and how to overcome this.

This made the need for a teaching session surrounding teamwork clear. Thusly, now, before the infographics summative assessment, students are provided a preparative teaching session surrounding teamwork. In this session, every team member's voice is heard from the beginning. Students are encouraged to speak to each other regarding their strengths, weaknesses and skill sets. A set of rules is established in each team. Groups then finally create a brief, two PowerPoint slide presentation outlining what they want their team to be and how they want it to work. This was changed this year to be a submission on Insendi that they could all refer back to, as well as verbal presentation to tutors in their groups.

When introducing group work some consideration needs to be given to how students with specific learning needs can be successfully participating in group interactions. All students involved should benefit from inclusive practice this means that inclusivity considerations can be embedded within standard practice around preparing students for group work. This can be done through discussion around the allocation of roles and better understanding how others, including those with specific learning needs such as dyslexia, autism, dyspraxia etc learn and communicate. Individuals should be mindful of that and think about the delegation of individual tasks that are appropriate to what individuals can do. Therefore part of preparation for group work is considering how others can be mindful and empathetic towards other group members.

This has made some significant, positive, changes to how the teams function; roles are well established in teams, work is distributed evenly between individuals, and perhaps most importantly, the loudest, most extroverted team member does not "gallop away" with the task as everyone holds on or steps back, as was the tendency prior to introducing the preparatory exercises.

In terms of the infographics, students are also given the mark scheme beforehand and are given a run-through of total marks, the weighting of each section of the marking criteria, what the examiners expect, and other aspects of the rubric.

In terms of submission instructions, the teams are expected to use a pre prepared PPT slide with the following instructions:

Create your Language Matters infographic on page 3 of this document and copy it onto pages 4 & 5.
On page 4, annotate the infographic using the speech bubbles to demon-strate the key messages chosen and the thinking and rationale behind the choice of those specific messages for your target audience with refer-

ence to the learning from the workshop.
On page 5, annotate the infographic using the speech bubbles to demon-strate the barriers to reaching the target audience and how you have overcome these barriers in the design of your infographic, demonstrating the thinking and rationale behind the barriers mentioned, with reference to the learning from the workshop. You may also consider the challenges of being able to effect behavioural change thinking about motivation, the process of change and how these challenges may be met.

There are also preparatory readings that the students are provided with that may help with shaping their posters, but students are welcome to use other sources if they wish. The readings direct the students to appropriate sources that can inform the content of their posters.

Marking arrangements

Given how different it is from other assessment types, making a good mark scheme for infographics is a challenging exercise. Despite being a fun, creative style of assessment, students are expected to treat it as an assessment just as any other. The marking criteria is therefore very discriminating for this reason, with most students achieving 'meets expectations' or 'deserves merit', but 'distinction' mark is a rarer occurrence. The marking criteria focus around the following categories:

- Visual depiction of key messages - The infographic was visually engaging. Messages were well presented with good readability.
- Articulation of key messages chosen - The infographic identifies 2 – 3 pertinent messages in relation to promoting better communication with people with diabetes and about diabetes. The messages demonstrate an understanding of the learning covered in the Language Matters Diabetes Workshop
- Annotation of the rationale behind the messages selected - The infographic demonstrates independent research and analysis and reflection relating to the issues raised. Information and messages are being presented in an innovative way and demonstrate reflection on the impact of communication on the healthcare experiences of people living with diabetes.
- Visual presentation in relation to engaging target audience - Images and graphics were well chosen and appropriate to the target audience. They reinforced/ enhanced the messages in the infographic.
- Annotation: Identification of the barriers to reaching the target audience - Thorough reflection on the barriers that might prevent the target audience from engaging with the issues relating to the Language Matters campaign and from thinking about the language used when communicating with people with diabetes and about diabetes. To gain high marks, the discussion should include evidence from the literature and learning resources as well as reflection on the workshop itself.
- Annotation: Overcoming the identified barriers - Discussion of how the infographic overcomes barriers to engaging with the issues and improving the language used when talking with or about people with diabetes. To gain high marks, the discussion should include evi-

Another consideration needs to be given in terms of reasonable adjustments for students with declared learning disabilities. The tight timeline for group work and submission may disadvantage some students and groups hence some decisions need to be made around allowing extra time if necessary. The Universal Design approach would allow all students extra time if the needed it as those who genuinely need it would make use of it and those who don't, would finish within the allocated time but the option to continue should be offered to all.

dence from the literature and learning resources as well as reflection on the workshop itself.

Full marking scheme is available here.

This strict grading system can be quite distressing to these young students who are used to being top of the class before university, but there is always room for improvement, and that the module team want to encourage students to perform their absolute best. Most students, while disheartened, take constructive criticism very well and are keen to learn from their mistakes.

It is useful to recognise and support students as they transition from school to undergraduate study and that this can be challenging. Feedback should highlight areas for development as well as aspects of the work done well as this can support students' motivation and avoid feeling disheartened. Whilst it can be motivating to students to feel challenged, it is important to ensure that the marking scheme is achievable and well aligned to the intended outcomes of the assessment.

Training markers involves bringing all markers together at a markers meeting. Four infographics are selected at random, they are marked silently by everyone individually, and then a discussion is held where every marker explains why and how they marked, and people thence adjust their grades, until a consensus is reached for all four. This functions as a calibration method for the markers, who thence go off in pairs and mark posters to a similar standard. Though, some people will mark higher, some will mark lower, and blind double marking is adopted to guide against extreme views.

Following this meeting, markers split off into pairs and begin marking. One examiner writes their mark, as does the other. They discuss their marks for the infographic, reach an agreed mark and move on. This method works well as there is very rarely disagreement between markers, and one marker may see an infographic in an angle that the other had not thought about.

Feedback arrangements
Written feedback is provided within two weeks of the infographic being submitted. Examiners tell students what they did well, what they could have done differently and give them hints and tips as to what they saw when they looked at their infographic.

Constructive criticism is key here. They try to keep comments specific to certain changeable aspects of the poster e.g., 'colour scheme could be catered for colourblind people' and such, while tying it closely to the mark scheme to keep feedback relevant.

The only other occasion where feedback is given is during the first session where students are taught teamwork and each group presents two

PowerPoint slides, as mentioned earlier. This is verbal feedback, and it is immediate with peer feedback as well. This usually works well in setting them up for the summative and avoiding the same mistakes.

Online adaptations (COVID)

With the assessment moving online during COVID, groups were placed in breakout rooms. Each tutor had four or five groups to hop in and out of breakout rooms and to see how they were progressing, ask them to share screen, and so on.

The difficulty with this setup is that in breakout rooms, it is not possible to see what the students are doing behind the screen. Students could be sitting on their phones, browsing the internet, essentially not contributing to the task very much, whereas with in person, you can see each student in their groups, who is contributing versus who is not, and interject as necessary.

With a large number of students (in this case 180) the issues around lack of monitoring also apply to the face to face setting. Part of the responsibility for engagement falls on the students. In the TBL context, this can be mitigated through the 'peer evaluation' part, however it is not included (and appropriately so) in the CSI summative assessments.

Advantages of the assessment type

- The students like the assessment and they are enthusiastic about it. They have grown up in a world with heavy exposure to creative content production (such as on YouTube and TikTok) and they enjoy being able to use their imagination and creativity to produce an infographic;
- It is strongly apparent to students what skills they are gaining out of the exercise (notably teamwork, creativity and critical thinking) and this makes the students work hard for their assessment;
- It is a lot more interesting and easier to mark from an examiner's perspective;
- Teaching the module is also a lot more fun from a teacher's perspective. The progress the students make is visible through their output, and noticeable through observing the teams grow and become better at teamwork and role delegation;
- students really think about the material taught and its application to the scenario, so they both

assimilate and utilise the learning very well;
- Infographics is a different way to how information would usually be presented in some parts of medicine whereas other parts, especially the more patient focused parts like GP clinics and Public Health professionals are embracing it.

Limitations of the assessment type

- Not all of the medical world is ready for infographics, so this limits what can be assessed (postgraduate student assessment is formative). Much of medicine is very traditional in their assessment approaches, so this novel approach may seem too "simple" to be a summative assessment to some, but the feeling is that attitudes are changing. Infographics may need a slow transition before it can become widely accepted;
- This specific assessment is a relatively small percentage of the overall mark for the module - it's part of a whole sequence of programmatic assessments so a nice way of introducing more 'innovative' ways to communicate knowledge;
- In the undergraduate assessment, it is difficult to know where students have accessed their resources because, although preferred, there is no requirement for references or acknowledgements as their work is not being published;
- It is also difficult to ascertain who is responsible for what work in the group without close monitoring, regarding who has worked more, and who has worked less. When it is seen, it is fixable and students can be advised and encouraged, but to monitor every team closely enough is a difficult task;
- Sometimes for international students, the unusual style of the assessment can confuse them and make them unfamiliar with how to work. This is usually rectified with other students in the group, who may be more familiar with such assessment styles, to help guide the international students;

Advice for implementation

- For more creative assessments, it is useful to consider if there are specific resources that students need access to. Also, if there are specific skills required or skill which will be assessed e.g., use of a software package to produce the infographic

that they might not have previously learnt. If so, this should be made clear to students and students should have the opportunity to learn and develop these skills;

- Adjusting to new ways of learning can be tricky especially for the students who are used to being high achievers. It is important to support students in this transition between school learning and university learning. This can be done through supportive feedback that highlights strengths as well as areas for improvement to help students maintain motivation and maintain positive mindset;

- With innovative assessment types a lot of effort needs to be spent to ensure that students understand how the ILOs are tested and what they are going to be marked on. This can be done through the use of exemplars, formative assessments and/ or explicit discussion and application of assessment criteria to different pieces of work;

- When preparing students for group work, consideration needs to be given to how include the needs of students with specific learning difficulties;

- Ensure that reasonable adjustments, such as extra time added for students with declared learning difficulties is factored in into the assessment design;

- Having a common, pre-designed template for displaying the finished work is helpful in introducing a level of parity and reinforcing expectations for pieces of work that are more creative in nature.