Irish Journal of Technology Enhanced Learning

Vol 8, Issue 1

A rollercoaster of drawing and using digital tools!: Graphicking and grappling in a community of practice

Tamsin Cavaliero*, Jennifer Gilligan, Ellen McCabe
Atlantic Technological University

Abstract

Graphic Facilitation provides opportunities to differentiate instruction in a variety of forms by increasing strategies and interest. Domain general strategies have been shown to improve student outcomes across a range of levels and subjects (Dinsmore et al., 2018). This practitioner paper charts the journey of developing a Graphic Facilitation Digital Badge for staff in a Higher Education institution from the perspective of three educators (two instructional designers and a lecturer) exploring the use of Graphic Facilitation as a tool for teaching and learning across a range of subjects and discipline areas to enhance communication and sustain participation across a diverse cohort of students. The presentation focuses on how we applied Graphic Facilitation as a strategy through planning, teaching, assessing, providing feedback and reflection on learning. Following the module participants were required to complete an evaluation form. Feedback from participants is presented. The findings highlight the value of graphic facilitation in supporting learners to develop graphic strategies to increase student engagement, enhance communication, engage with new technologies and develop a sense of community through exploring a shared interest amongst staff at a Higher Education institution through engagement in an online classroom.

Keywords

Graphic Facilitation, Online, Instructional Design

Introduction

Visual language supports our increasing use of technology by providing information in an accessible format (Checkland, 1981; Horn, 1998; Sibbett, 2002; Simpson, 2000). Different learning styles and ways of processing information (Armstrong, 2000; Gardner, 1985) require flexible and accessible delivery strategies (Kechego & Stolarchuk, 2022; Rose & Meyer, 2002). Strategies support problem solving and task accomplishment (Alexander & Judy, 1988). High quality strategy deployment enables gains in learning performance (Dinsmore 2017, 2018; Rotgans & Schmidt 2011; Schiefele et al., 1992). The use of images as an

* Corresponding author email: Tamsin.Cavaliero@atu.ie

instructional strategy can stimulate new meaning and insight (Checkland 1981; Horan 2000) and promote reflection and deep learning (Espiner & Hartnett, 2016). Visual learning styles support thinking processes, as well as speaking to heart and soul (Bell & Morse, 2012; Gee 2019; Hooper et al., 2003) engaging learners, facilitating creative thinking and problem solving (Bell and Morse, 2012; Hausmann, 2017). Drawing can reduce anxiety levels and increase mood (Bell & Robbins, 2007). Graphic Facilitation utilises a variety of visual approaches and creative media to capture big ideas, tell stories, map processes, engage audiences and present information clearly. Influenced by the work of designers and architects, it began in San Francisco in the 1970's (Sibbet, 2008) and continues to grow. Graphic facilitation methods are used by community organisations, software engineers, businesses and healthcare planners among others (Hausmann 2017). Whilst Graphic Facilitation approaches are widely utilized in business settings the application of the approach to educational environments is a relatively new phenomenon (Nielsen, et. al., 2018). Creating accessible spaces for all learners includes online and distance learners. Many studies highlight the sense of isolation experienced by online learners (Bawa, 2016; Cheah & Shimul, 2020; George et al., 2018; George & Tarr, 2021; Milheim, 2012; Rovai, 2002; Rovai & Downey, 2010; Rush, 2015). This is significant when considering higher levels of attrition in online programmes (Tertiary Education Quality and Standards Agency, 2017, p. 14) and particularly those that cater to part-time and mature students (Cherastidtham & Norton, 2018, p. 13). Following the principle of Universal Design (Rose & Meyer, 2002; Helvacioglu & Karamanoglu, 2012) that all aspects of the learning experience are inclusive and accessible for everyone, we created a module in Graphic Facilitation that could be delivered to staff at a Higher Education institute. A primary goal of UDL implementation is to create more equitable, accessible and inclusive learning environments (Kearney, 2022). Graphic Facilitation spans all 3 UDL networks (Affective, Recognition and Strategic) by offering options for recruiting and sustaining effort and persistence, opportunities for self-regulation (Affective), options for perception, options for language and symbols, options for comprehension (Recognition) options for expression and communication (Strategic). Recent research highlights the value of foregrounding instructional decisions over the use of a learning styles approach in order to improve student outcomes (Dinsmore et al., 2022).

We considered a module design that would facilitate a successful learning experience both online and on campus. As such, from the initial design stages, careful consideration of the interaction between technology and pedagogy was required. The pedagogical approach of this course is significantly informed by Dewey's theory of experience and education, whereby learning material is not merely assimilated by students in an essential static manner, but must be reshaped, reassessed and reconstructed in light of their own personal experience and background (Dewey 1998). This philosophy was particularly pertinent in relation to the graphic facilitation badge, which sought to empower learners to integrate the principles into their own discipline and practice.

Together with this the nature of graphic facilitation affords a breadth of opportunity for interaction, supporting a stimulated and engaged learning community. The adoption of an experience-based approach affords students an insight into the processes and output of their peers, through conversation, debate, and presentation. In this way participants could begin not only to view their peers as an important source of critique and inspiration but were provided with opportunities to form new professional and personal bonds (Ohler 2008).

It was the assertion of this research that the most meaningful learning would not occur between student and interface, but through the interactions and relationships between student and teacher as well as among the learners themselves. As such, a simple, yet robust digital

learning environment was created with a view to fostering and augmenting such relationships.

A process of Analysis, Design, Develop, Implement and Evaluate (ADDIE) course design (Branch 2009) guided the creation of the module. This approach places the student at the centre of all design decisions, providing opportunity for iterations before progressing to the next stage. The purpose of this choice was to allow students to actively connect the learning material to their lived experience, enhancing its potential to inform the students' ongoing development. In this way the potential for the knowledge and skills acquired to be applied to a range of diverse situations and environments is greatly increased (Dewey, 1998). This was vital for this graphic facilitation badge which sought to facilitate wider and sustained participation for all members of the group by delivering information in engaging, accessible formats that value diversity and celebrate connectedness.

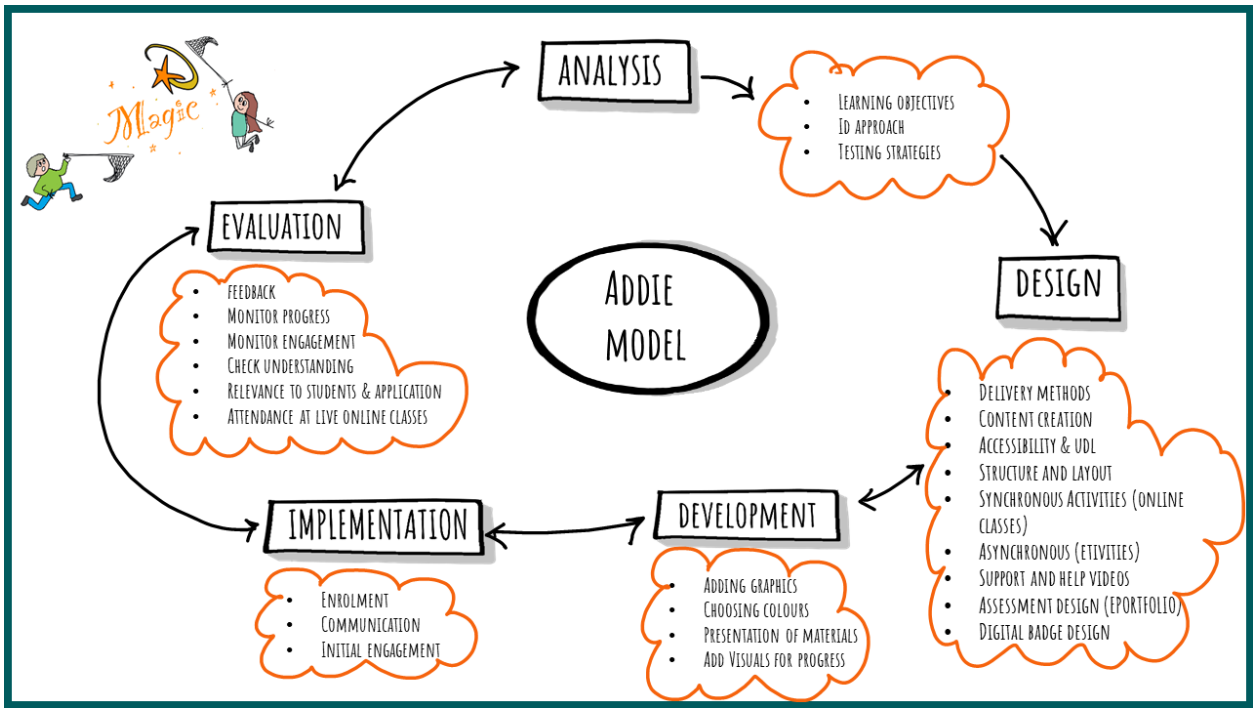


Figure 1. Our application of the ADDIE (Branch 2009) model

Salmon's (2013) e-tivities were selected to provide a structure for developing online activities and bridging students into the online classroom. E-tivities deliver four core functions, they; draw out prior knowledge, allow an application of new knowledge, prepare participants for the live class and support participants to showcase their knowledge with the rest of the group. By scaffolding engaged discussion and informal presentation in this way students can interact with the alternative learning of their classmates, facilitating peer review and feedback. Through this process fellow students become an important source of critique and inspiration.

This fundamental interchange of knowledge was augmented using an online forum. The utilisation of this open, asynchronous platform necessitates that participants read, review and comment on others' work. Participation is incremental, initially necessitating individuals' engagement to build confidence in the online space and gradually requiring students to work together to form ideas and construct new information together. This process of sharing and review may have significant implications for the students' perception of their own work, as

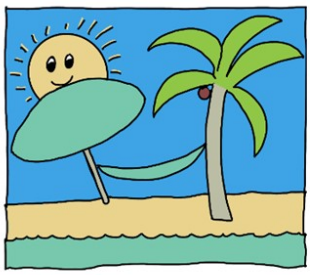
they progress from simply wanting to present their drawing and graphics to perceiving how the audience understand and interact with them (Ohler, 2008). Students may also be drawn to cooperate, combine skills and learning experiences through collaborative work and shared ideas.

E-tivities prepared participants for the topic to be covered each week and provided a springboard for initial conversations. This was essential for ensuring engagement and sustained participation with the group whilst ensuring opportunities for representing diverse perspectives. The e-tivities were designed in such a way that the students were placed at the centre of the proposed task, prompting them to consider a concept, form an opinion, and apply that knowledge to their own work or context. An example of this was the Week Two e-tivity which required students to:

"Start to look around your current environment and consider what your ideal environment would look like. After posting your image of your ideal environment, read some of the others participants' posts. You may find others with whom you can share similar images with or maybe you have a question about their ideal environment? So get chatting!"

This experienced based approach allowed students to practically apply the learning material to their own lived experience, thus enhancing its potential resonance. By locating this activity in an open forum and instructing students to engage with the responses of their peers, fellow students become an important source of alternative insight and relationships were facilitated. In this way students are located as experts in their own learning, encouraging them to form their own knowledge organically (Salmon, 2013).

Wk 2. Etivity: Draw your ideal environment



Name of Etivity	Week 2. Your Ideal Environment
Purpose	This discussion activity is used so that you start to look around your current environment and what your ideal environment would look like. Using what you learned in Week 1. about Shapes, Containers and Connectors
Task	After posting your image of your ideal environment, read some of the others participants posts. You may find others with whom you can share similar images with or maybe you have a question about their ideal environment? So get chatting!
Response required	To complete this activity, you must: • Think about your ideal location • Draw a picture, take a photo or find a photo of your ideal location and post it here in the discussion forum • Tell us why it is your ideal location • Read some of the other participant's discussion posts • Reply to at least one other post with a question or comment • Upload the image as your Teams background image for week 2. live class.
Timeline	All posts must be completed by 6.30pm on Thursday 16th February

Figure 2. E-tivity example

The strategic deployment of E-tivity tasks offered opportunities for intentional and conscious support to students to prepare them for the instructional activity delivered each week ensuring students had time to reflect on the week's chosen theme and were potentially more prepared to engage in live class sessions. As previously noted, this had important implications for peer-learning, however it was also significant in relation to the development of community

and hence student wellbeing. Following this framework, we created the first 4 e-tivities in advance and devised the following e-tivities on a weekly basis, based upon reflection and review of the previous week's class.

Module delivery was informed by Gagné, et. al.,'s (2005) three stage learning process of 'Before, While and After' events. Activities were devised around the content - *Before* presenting the content *While* presenting the content and *After* presenting the content.

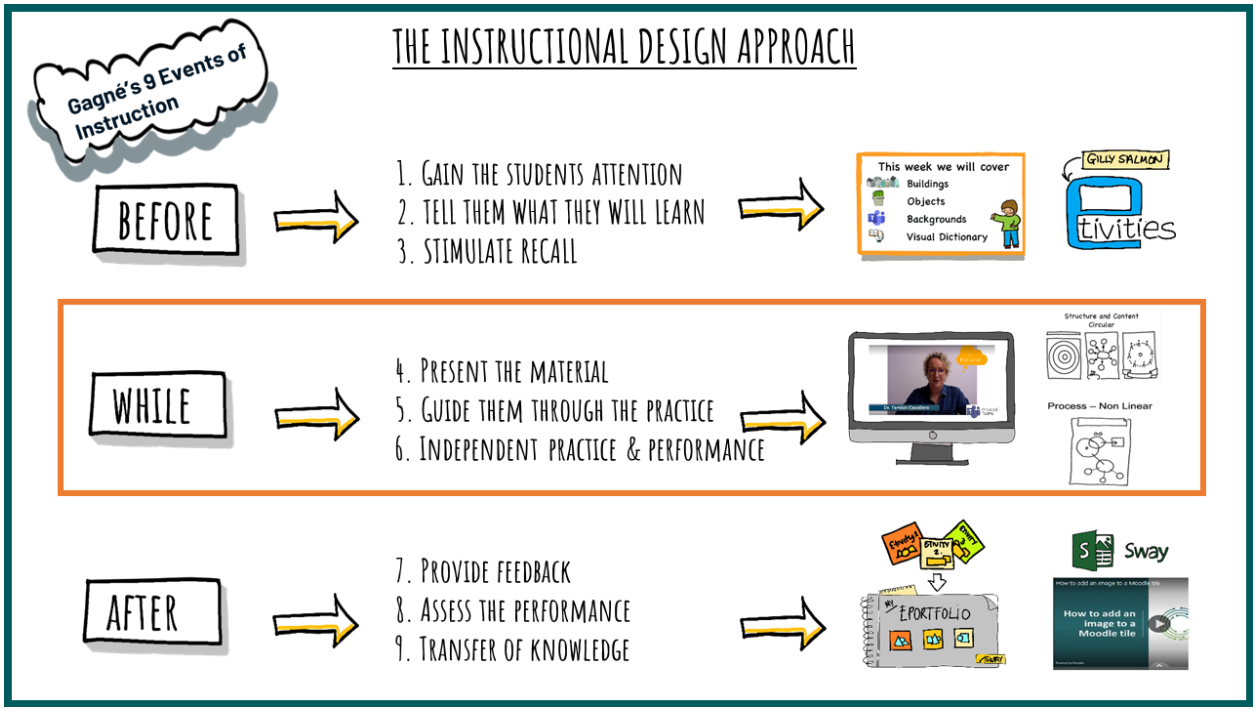


Figure 3. Gagné's 9 events of instruction mapped into practical and creative activities for our students.

Before delivering content, explanations of what topics would be covered each week were presented through eye-catching visual stimuli in the form of a visual agenda. Student involvement was facilitated by their input in student-to-student exercises through e-tivities. Additional resources such as mini videos were also shared around specific content as extra resources.

While delivering content students were guided through the practice of creating graphics during the live classes. The live classes were also recorded to facilitate students who were unable to attend the live online class. Students were provided with templates and exemplars that support independent practice and sharing of work during live sessions. A method of "Think, draw, share, discuss" was used in the live class. This approach allowed time for students to reflect on an idea or metaphor, draw an image to represent it and then share the image live. Discussion of the images allowed new ideas to be explored. This approach was purposely selected to encourage input and contributions from a variety of respondents with different attributes and backgrounds in order to support UDL principles (Kearney, 2022).

After delivering content students' performances were assessed, and feedback provided through audio, visual and text-based formats. Students were required to present their work on a weekly basis using a live eportfolio with Microsoft Office Sway as the software. This assessment method ensured that all hand drawn graphics were digitalized and stored in one

location. Frequent check-ins and verbal feedback encouraged participants to continue to work weekly on building their collection of graphics which were stored in their eportfolio.

Figure 4. Live classes using the Think, draw share, discuss approach

Delivery of the Module and Rollout of pilot

Participants were informed of the module following a short online presentation titled "Graphic Facilitation to Support Student Learning". The presentation provided an overview of Graphic Facilitation and its' application to educational environments delivered through the Centre for the Enhancement of Learning and Teaching (CELT). Following the presentation participants were required to register their interest. Funding for the course was provided through the INOTE[i] project. Participation in the course was free. The requirement for attending the course was that participants agreed to complete an anonymous end of module evaluation questionnaire. No previous experience of drawing or art was necessary. No additional technology was required to participate in the module beyond that of a laptop, webcam and access to Microsoft Office, all of which were resources already available to staff of the institution. Some participants had access to iPads and chose to use them, drawing through the application Procreate however it was emphasised that this was not a requirement for the module.

The initial course was offered over a 10-week period beginning in March 2021 to 17 members of staff. This included 12 teaching staff, and 5 Professional Managerial and Support Staff (PMSS). 12 participants were women and 5 were men. One of the participants was an instructional designer who worked in a dual role as course participant and adviser / support role to the Graphic Facilitator. Lecturer participants were from Business, Engineering and Design, Nutrition, Life Sciences, Marketing, Tourism and Sport, Computing, Social Sciences, and Science. Lecturers delivered modules across a range of Quality and Qualifications Ireland (QQI) levels from 6 to 9. Modules taught by the course participants included Ethics, Creative Practice, Strategic Management, Insurance,

Maintenance & Safety, Communications, Applied Drama Practice, Social Justice, Environmental legislation, Nutrition, Biology, Anatomy & Physiology, Disability Sport Inclusion, Health & Fitness, Nutrition & Performance, Weights Instruction, Personal Training Practice, Research Supervision, Personal Development, Chemistry, Forensics, Analytical Science, Programming, Electronic and Autonomous Vehicles, Structural Engineering & Design, Accounting and Finance. PMSS staff included Instructional designers, an Access Office student adviser, elearning and educational development specialist, and a clerical officer. Participants' length of time in employment in the institution ranged from 1 – 28 years. Participants' online expertise varied considerably. Some staff members had little experience of using the virtual learning platform Moodle and had only begun teaching online in the previous semester due to lockdown regulations whilst others had considerable online experience.

The module began with an introduction to drawing lines and basic shapes extending to icons such as objects, environments and people. During the first 4 weeks, drawing sessions involved the lecturer drawing live on an iPad which appeared on participants' screens. Using pen and paper, participants were able to watch the screen and copy the images to create icons in real time. Participants were encouraged to begin by using pen and paper and then digitize images. Each participant was required to photograph or scan their hand drawn icon and upload content into Microsoft Sway in the format of an eportfolio. This supported participants to learn how to digitize images thereby creating reusable content. Over time participants became confident in their drawing. The middle phase focused on structuring content through activities which included developing bespoke poster templates, customer/learning journeys, mind mapping, and storytelling. Weekly sessions were recorded and uploaded to the Moodle page so that participants could continue to practice with the videos after class. Participants were introduced to further technologies including MS Teams, Sway, Moodle and Miro:

Figure 5. Class reflection using Miro and Graphic Facilitation

Engagement with new technologies allowed opportunities to practice in a safe environment before implementing these skills in classroom work-based situations. At the end of the module each participant had created a bespoke set of visuals relevant to their work area that they could incorporate into their preferred mode of content.

Reflecting on our own experiences of participating in online learning environments we tailored delivery to focus on the most enjoyable aspects we had experienced as learners in previous online courses we had participated in. In line with UDL principles we aimed to model inclusive learning spaces. Consequently, we created a Moodle page as an exemplar showcasing for participants ideas for reformatting content to align with UDL principles of representation (Rose & Meyer, 2002). Through the Moodle page exemplar, we aimed to demonstrate flexibility and multiple avenues to deliver information to widen and sustain participation from diverse communities of learners that participants could draw inspiration from when creating their own virtual learning environments.

Classes began with a short piece of music being played as participants entered the online space followed by a short introductory session at the start of each class for check-in. Participants were then introduced to a new skill which was demonstrated in class, following which they were invited to practice together. During practice participants were invited to keep their cameras on. Time and space for processing of new learning was facilitated through live drawing sessions where participants and lecturer drew together. A weekly planning and review meeting between lecturer and instructional designers offered opportunities to reflect on learning from the perspective of facilitator / lecturer and participant / Instructional designers.

Methods

In order to evaluate participants' experiences of the module a qualitative survey was designed. Qualitative survey questions provide opportunities to harvest a range of diverse perspectives and experiences (Braun et al., 2020). Prior to commencing the module participants were required to complete a course acceptance form (see Appendix 1). On completion of the module participants were sent a link to an evaluation survey via email with an anonymous questionnaire designed on MS Forms (See Appendix 2). The questionnaire required confirmation that they were willing for results to be used for future publication. The questionnaire comprised 30 questions in total of which 29 were open-ended questions. The survey was divided into two areas – experience of the module (what they liked, what they did not like, module structure, communication methods,) and, secondly, participants' perceptions on developing the module (whether this could be used for future cohorts, whether the module could be scaled up, would the module work with students). Questions were selected to elicit information regarding participants acquisition of domain general instructional strategies that could be deployed within their subject area along with perceptions of the practicality of the module format. The findings presented here relate to the first set of questions focusing on the participants' experience of the module. Data analysis was guided by Braun and Clarke's (2006) six stage process. In this process researchers separately become familiar with the data, generate initial codes, first using open coding, developing and modifying codes as they move through the coding process. Responses are coded separately, researchers then compare codes, modify them if necessary and discuss. Then themes are identified, modified and developed to move beyond sematic and detect latent themes (Braun & Clarke, 2006, p. 84).

All participants completed the questionnaire. Of the 17 who participated in the course 11 completed homework activities and were awarded the digital badge, a further 4 participated in the live classes but did not complete all homework assignments. 2 participants did not complete the course due to role changes during the duration of the module which meant they were no longer able to participate. The findings below focus on the responses to the open-ended questions based on participants' experiences of engaging in the module.

Findings

This section outlines the findings provided by the evaluation survey. The findings are grouped under three key themes, these are; Graphicking, Grappling, and, Community of Practice. Graphicking relates to those aspects of the findings concerned with the use of procedural skillsets such as visuals and includes elements of how the deployment of these strategies enhance teaching delivery, feedback, assessment and overall communication. Grappling is concerned with the elements that challenge learners, these are; time for thinking and processing information; learning a new skill set – that of graphic facilitation, and, learning new technology; and, how to incorporate new technologies into a graphic facilitation practice to work in online environments. Community of Practice relates to the shared interests generated from participating in the module including sense of community, and wellbeing which enhanced participation.

Graphicking: Communication

Graphic Facilitation enhances communication using visuals combined with text and this is evident on the Virtual Learning platform where participants appreciated the opportunity to see and interact with a Virtual Learning platform presented through graphics. In addition to visuals, audio was included, and this was valued and commented upon. New ways of enhancing communication practices across the VLE provided some participants with ideas for incorporating them into their own teaching. Email communication from lecturer to participants was limited to one per week and included visuals to enhance, structure and streamline information. This was valued as a learning reminder and highlighted as a valuable teaching resource. Along with the weekly email reminder, participants appreciated the positive tone of email communication. Using a strengths-based approach to feedback by adapting a positive tone created helpful feedback opportunities.

The assessment of the module included weekly homework activities that were uploaded to an eportfolio along with an e-tivity that was to be completed prior to the start of the live class. Participants were generally positive about the homework activity, which they felt was relevant to the purpose of the module. Participant 1 noted how "the homework kept me engaged and some evenings I would finish what I was doing while in the flow." Whilst the homework activities were identified as being relevant to the topic, participants also noted that the homework activities challenged them to think about how they organised content for example Participant 8 found the homework activities "very enjoyable but challenging [they] really forced you to think in terms of conveying information simply and effectively."

E-tivity participation required participants to upload content prior to class and, if they wished, comment in response to others' posts. Participant 15 valued ways the e-tivities supported interactions between students stating, "I think they were a great idea - kept you hooked in and helped you to get to know each other in a different way as well." Participants responded well to e-tivities which they noted helped to prepare and focus them for the upcoming class:

> *I really liked the e-activity as it informed me of what we were going to be covering each week. It helped me get into the mindset to mentally prepare for the class. While it was short and did not take long to complete it enabled me to reflect on what was to be addressed in the following class (Participant 3)*

The opportunity to comment on each other's posts allowed students to build connections as a group and begin to build confidence in showing their work. One participant noted their initial difficulty with uploading content that could be viewed by others in the group, but acknowledged the supportive group environment allayed their initial anxieties. Participant 5 noted that commenting was "a bit scary putting your stuff or your thoughts out there with peers - insecurities! Having said that everyone else was so generous with their bits and pieces that fear lessened as the weeks progressed." Sharing work with one another builds confidence and further enhances the sense of community and camaraderie that is so necessary in facilitating an online community learning environment.

Grappling: Time for Thinking and Technology

Graphic Facilitation requires practitioners to develop a visual language, and this takes time. Allowing new learning to take root is also time consuming whilst new ideas and thought patterns also require time to become fully 'hatched':

> *Converting theoretical content into graphics is a difficult take. You have to deconstruct your text and package it in a way that makes sense. This is almost like looking at the content for the first time and re-evaluating how best to present it to the students (Participant 3)*

> *Well for the last task, I procrastinated for 9 days but I was mulling ideas around in my head on and off. When I finally decided to tackle it, I made a quick sketch that took 1 minute and then spent approx. 2 hours between drawing, colouring in paint 3D and putting the separate images together (Participant 2)*

The module was designed to introduce a skill set and then practice it together to build confidence. Overall participants appreciated the way the structure of each session allowed them to learn new skills together in class. Participants valued the pacing of the content delivery which facilitated time to process new information. Whilst this could be time-consuming, for some, these activities created opportunities to access enjoyable learning spaces as evidenced by the following statement:

> *The homework activities were interesting and challenging. Generally it would take about 2 hours to complete the homework start to finish but on one or two occasions it took longer. This was mainly because I would become engrossed in the activity and found it enjoyable (Participant 3)*

This finding of increased interest also improving classroom behaviours is in line with earlier findings from Rotgans and Schmidt (2011).

The additional requirement of gaining software knowledge in combination with Graphic Facilitation skills certainly created a sense of an added burden to learners at the start of the module. Participant 2 described the module as "a rollercoaster of drawing and digital tools!" Delivery in an online space places additional demands on learners in the form of learning to

use different types of technology. Participant 11 explained how the classes "stretched me to use new devices - e.g.: the view finder thingy, when I shared my work with the group." Grappling with software created further time pressures on participants. Looking back at the end of their learning journey they appreciated the value of the new technological knowledge they had acquired. Whereas other participants enjoyed learning new technology and appreciated the organizational opportunities it offered for storing content. Whilst many positive responses were noted by participants, the module was not without challenges, these challenges were often around fitting in the time to learn a new skill with a busy schedule. Not surprisingly, learning about new technology featured high on participants' priority list of take away learning from the module, Participant 3 noted that "I really only use Windows and did not teach online until Covid-19. So, I would say I am not very technically adept. I know that through this course I have learned some new skills." These challenges extended to participants who had more experience of technology, Participant 1 explained "I use technology every day, but I had never used SWAY or MIRO and learned a lot in Word and Paint 3D, so I have acquired a lot more technology skills also."

When asked to consider in what ways they would apply their newfound skill, some participants stated that they would incorporate the assessment tool (e-portfolio):

> *Will definitely use Sway as an assessment tool - I think it would be very engaging for 1st years with my Anatomy& Physiology' module. Sway could be used for student 'Personal Trainers' to track client progress or used in the 'Disability Sport Inclusion' module for students to document their work with disability groups (Participant 2)*

Some participants were also made aware of the challenge facing many part-time students as they attempted to balance their own learning whilst working during the semester. Participant 12 recognised the insights they had gained into their students' lives through participating in the module, "Reminding myself how difficult it can be to schedule study time when you are a part-time 'student'."

Consequently, a combination of all 3 – technology, time and thinking differently coalesce at different times throughout the module to emerge as pressures impacting on the participants' ability to successfully navigate the module.

Community of Practice

When asked to consider key takeaway learning from the module beyond that of graphic facilitation skills, a significant outcome for participants was experiencing online learning as a student. Participants regularly engage in continuous professional development, however experiencing being an online student was new and certainly contributed to an appreciation of the challenges facing online learners, Participant 7 found "Being a learner in an online module gives greater understanding of what it's like to be a student navigating online." This new understanding increased their appreciation of the need for visually appealing well-structured content. This aspect of supporting online learning and community aligns well with UDL, EDI and indigenous learning perspectives (Kechego & Stolarchuk, 2022). It offers ways of thinking about places and spaces for learning within an online environment linking knowledge strategies and interests thereby facilitating diverse audiences and creating welcoming and accessible environments:

> *You don't have to be an artist to do graphic facilitation. Before the module I didn't really know anything about graphic facilitation or if I would even be able to do it. Now, I understand how valuable it is in grabbing one's attention and getting a message across and how beneficial it is to those who are more visual than text-based individuals. I know I easily remember what I see rather than what I read (Participant 1)*

> *For me, I often don't think about geographic locations when idealising a certain environment. I think of the mental, psychological, social and sometimes cultural etc. elements that make a certain environment the ideal...It's interesting how our worldview influences how we answer this question (Participant 17)*

The supportive group environment was further enhanced as participants were invited to leave their cameras on even when drawing together to create a sense of being in the room and this was appreciated:

> *Everyone was so positive and encouraging. It was a nice idea to provide feedback to others and review their work. Loved that some left cameras on while drawing. There were some entertaining exchanges and characters in the class that added to the experience... I really enjoyed the interaction within the class and learning about different peoples' areas of work and their own backgrounds. The course was like my 'mindfulness' time (Participant 16)*

Some participants noted how participating in the live classes offered opportunities for interacting with colleagues and began to see it as part of their self-care. Participant 13 noted, "The unexpected outcome for me is that I was surprised that I enjoyed drawing and found it therapeutic." This element of drawing as a form of self-care was highlighted by one participant as being of value for students entering the job market with Participant 6 suggesting, "Employer feedback is that students/graduates are not resilient and have suggested we include a module on resilience training. I could see this as being an element of such a module." Whilst drawing was valued as aiding relaxation, the act of drawing together operated as a strategy to build knowledge, develop confidence in and increase class engagement resulting in gains in learning performance that was highly valued by participants:

> *I found the group experience really enjoyable. Starting I know some of the other members of the group but through sharing visuals I can see my colleagues in a new light. I found the creativity of some group members exceptional and humbling. I hope that my creativity will improve with practice. I really enjoyed that the class members were so willing to share ideas and tricks that will help us all. I found it a very supportive environment (Participant 1)*

The group learning experience was significant for participants offering insights into different lived experiences and providing acknowledgement and affirmation of difference. The group experience offered opportunities for community encounters with Participant 5 expressing "the community was one of my favourite elements of the course." These findings offered opportunities for us as educators delivering the module, as well as educators participating in the module to consider the value of incorporating graphic facilitation methods into teaching and learning through storyboarding, timelines and mind maps. Graphic Facilitation supports instructors to develop strategies that have the potential to improve learning performance

through increasing student engagement, enhancing communication, engaging with new technologies and furthering a sense of community.

Discussion

Overall, the participants' experience of the module allowed them to gain new skill sets. Graphic Facilitation provided participants with practical strategies to deliver information. Whilst the study was small scale initial findings would seem to suggest that this finding is important as earlier studies have documented specialised forms of procedural knowledge supporting problem solving and individual task accomplishment (Alexander & Judy, 1988; Schiefele et. al., 1992) through increasing situational interest (Dinsmore, et. al., 2018; Rorgans & Schmidt, 2011). Participants were able to understand the value of creating visually appealing, well-structured content to engage learners (Sibbett, 2000; Haussman, 2017; Kearney, 2022; Kechego & Stolarchuk, 2022; Rose & Meyer, 2002). Furthermore, being an online learner offers participants an opportunity to re-evaluate the challenges facing online students (Tertiary Education Quality and Standards Agency, 2017) including part-time and mature distance learners Cherastidtham & Norton, 2018, p. 13), those who may be beginning their online journey, and, particularly those with diverse lived experiences. These findings supported what we had initially hoped to offer through the creation of the module. Perhaps more interesting was the sense of community that developed throughout the process of participating in the module. This finding is of significance considering previous literature indicating the sense of social isolation experienced by online learners as contributing to student attrition (Bawa, 2016; George et al., 2018; Milheim, 2012; Rovai, 2002; Rovai & Downey, 2010; Rush, 2015). When considering the value to instructors, modelling an engaging and accommodating online learning environment through ongoing live interaction and experiential based learning provided concrete examples of how to implement sustained and supportive strategies and replicate the inclusive environment. In line with previous findings (Cheah & Shimul, 2020; George & Tarr, 2021) experiencing social interactions through the live classes offered participants opportunities to connect with others. Drawing together provided group support and for some participants, opportunities to experience mindfulness and develop new self-care routines in line with findings from Bell and Morse, (2012) and Bell and Robins (2007). Drawing as a practice offered other participants opportunities to connect with creativity (Espiner & Hartnett, 2016). Creating accessible environments is a challenge facing educators both on campus and in online environments. Graphic Facilitation also challenges traditional teaching styles decentering hierarchical didactic models and acknowledging alternative approaches which acknowledge diverse perspectives and those favoured by indigenous teachings that celebrate group wisdom. Utilising graphic facilitation in a learning environment has the potential to further a sense of community and enhance online engagement by offering options for alternate formats, developing content for instruction and utilising strategies that value diversity. Graphic facilitation allows all participants to experience themselves as being able to draw. Discovering new skills such as drawing can build confidence and may offer learners opportunities to practice self-care.

Conclusion

This paper described the process of developing a graphic facilitation digital badge module for staff to support the development of domain general strategies to improve learning outcomes. Instructional design elements underpinned the planning and delivery of the module.
Adopting graphic strategies has the potential to improve classroom behaviours and learning

outcomes such as generating interest, increasing problem solving and activate domain specific knowledge. In addition, creating opportunities to build a sense of community through drawing together in an online space offered participants further opportunities to connect with colleagues, furthering a sense of community, reflect on the value of incorporating inclusive teaching exchanges that incorporate diverse groups of students and, in some cases, improve their sense of wellbeing. Effective strategy use leads to better learning outcomes (Dinsmore et al., 2018), making time to forge the lecturer-instructional designer relationship allowed us to combine structured pedagogic approaches, drawing from Graphic Facilitation techniques and instructional design and thereby, learn from each other and draw on our strengths.

References

Alexander, P. A., & Judy, J. E., (1988). The interaction of domain-specific and strategic knowledge in academic performance. *Review of Educational Research*, 58(4), 375-404. https://doi.org/10.3102/00346543058004375

Armstrong, T. (2000). *In their own way: Discovering and Encouraging Your Child's Multiple Intelligences*. 4th ed. Tarcher Press.

Battiste, M. (2002). *Indigenous Knowledge and Pedagogy in First Nations Education: A Literature Review with Recommendations.* Canada: National Working Group on Education.

Bawa, P. (2016). Retention in online courses: Exploring issues and solutions – a literature review. *SAGEOpen, January-March,*1-11. https://doi.org/10.1177/2158244015621777

Bell, E. & Robbins, S. J., (2007). Effect of Art production on Negative Mood: A Randomized, Controlled Trial. *Art Therapy: Journal of the American Art Therapy Association, 24(2),* 71-75.

Bell, S., & Morse, S. (2012). How People Use Rich Pictures to Help Them Think and Act. *Systemic Practice and Action Research*, *26(4),* 331-348.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., Clarke, V., Boulton, E., Davey, L., & McEvoy, C. (2020). The online survey as a *qualitative* research tool. *International Journal of Social Research Methodology*, *24(6)*, 641-654. https://doi.org/10.1080/13645579.2020.1805550

Branch, R. M., (2009). *Instructional design: The ADDIE approach.* 7th ed. Springer.

Checkland, P. (1981). *Systems thinking, systems practice*. 1st ed. Wiley & Sons.

Cheah, I. & S. A. Sadat, (2020). Does Social Isolation Influence the Intention to Continue Online Learning in Higher Education? (December 30, 2020). *SSRN*: https://ssrn.com/abstract=4320503

Cherastidtham I., & Norton, A. (2018). University attrition: What helps and what hinders university completion? Grattan Institute. https://grattan.edu.au/wp-content/uploads/2018/04/University-attrition-background.pdf

Dewey, J. (1998). E*xperience and Education (Kappa Delta Pi Lecture)* (Reprint Edition 2008). Free Press.

Dinsmore, D. L., (2017). Towards a dynamic, multidimensional model of strategic processing. *Educational Psychology Review*, 29(2), 235-268. https://doi.org/10.1007/s10648-017-9407-5

Dinsmore, D. L., Hattan, C., & List, A. (2018) A meta-analysis of strategy use and performance in the Model of Domain Learning. In H. Fives & D.L. Dinsmore (Eds.) *The Model of Domain Learning: Understanding the development of expertise* (pp.37-55). Routledge.

Dinsmore, D. L., Fryer, L. K., Parkinson, M. M., (2022). The learning styles hypothesis is false, but there are patterns of student characteristics that are useful. *Theory into Practice*, 16(4), 418-428. https://doi.org/10.1007/s10648-017-9407-5

Espiner, D. & Hartnett, F. (2016). Innovation and graphic facilitation. *Aotearoa New Zealand Social Work, 28(4)*, 44-53.

Forms, Microsoft (2016). https://forms.office.com/Pages/DesignPageV2.aspx

Gagné, R. M., Wager, W. W., Golas, K. C., Keller, J. M. & Russell, J. D., (2005). *Principles of instructional design*. 5th ed. Wadsworth.

Gardner, H. (1985). *Frames of mind: Theory of multiple intelligences*. 1st ed. Basic Books.

Gee, J. (2019). 'Visual Note Taking: Elements and Principles'. In J. Blijsie, T. Hamons & R. S. Smith (Eds.), *The World of Visual Facilitation: Unlock Your Power to Connect People and Ideas* (pp. 114-122). The Visual Connection Publishers.

George, A., McEwan, A., & Tarr, J. (2018). Facebook: Bridging the otherness of distance legal education. *Journal of the Australasian Law Teachers' Association*, *11*, 35-48. https://doi.org/10.13140/RG.2.2.19239.70564

George, A., McEwan, A., & Tarr, J. (2021). Accountability in educational dialogue on attrition rates: Understanding external attrition factors and isolation in online law school. *Australasian Journal of Educational Technology*, *37*(1), 111-132. https://ajet.org.au/index.php/AJET/article/view/6175/1682

Haussmann, M. (2017). *UZMO Thinking With Your Pen: presenting, Documenting, and Exploring Visually*. 1st ed. Redline Verlag Publications.

Helvacioglu, E. & Karamanoglu, N.N., (2012). Awareness of the concept of universal design in design education. *Procedia-Social and Behavioral Sciences*, *51,*99-103. https://www.sciencedirect.com/science/article/pii/S1877042812032636

Hooper, K. Low, J. & Kearins, H. (2003). Pictures in New Zealand annual reports: Winner and losers. *Asia Pacific Public Relations Journal 32(2),* 83-107.

Horan, P. (2000). Using rich pictures in information systems teaching. In G. Altmann, J.W. Lamp, P.E.D. Love, P. Mandal, R. Smith, & M.J. Warren. (Eds.) *Proceedings of the First International Conference on Systems Thinking in Management* (pp.257-262). Geelong, Australia.

Horn, R. E. (1998). *Visual Language: Global communication for the 21st century*. Bainbridge Island: MacroVU Press.

Kearney, D. B. (2022). *Universal Design for Learning (UDL) for Inclusivity, Diversity, Equity and Accessibility (IDEA) A Guide for Post Secondary Educators*. Retrieved from: https://ecampusontario.pressbooks.pub/universaldesign/

Kechego, J., and Stolarchuk, L. (2022). Indigenous Pedagogies and the Benefits for all Learners in Ontario. In D.B. Kearney (Ed.) *Universal Design for Learning (UDL) for Inclusivity, Diversity, Equity and Accessibility (IDEA) A Guide for Post Secondary Educators* (pp.113-145). Retrieved from: https://ecampusontario.pressbooks.pub/universaldesign/

Milheim, K. L. (2012). Toward a better experience: Examining student needs in the online classroom through Maslow's hierarchy of needs model. *MERLOT Journal of Online Learning and Teaching*, *8*(2), 159-171. https://jolt.merlot.org/vol8no2/milheim_0612.htm

MIRO (2017). https://miro.com/blog/

Moodle (2002). https://moodle.org/

Hautopp, H., & Ørngreen, R. (2018). A Review of Graphic Facilitation in Organizational and Educational Contexts. *Designs for Learning*, *10*(1), 53–62. DOI: http://doi.org/10.16993/dfl.97

Office 365, Microsoft (2011). https://www.microsoft.com/en-ie/microsoft-365

Ohler, J. (2008). *Digital Storytelling in the Classroom: New Media Pathways to Literacy, Learning and Creativity*. 1st ed. Corwin Press.

Powerpoint, Microsoft (2013). [Logo] https://www.microsoft.com/en-us/microsoft-365/powerpoint

Paint 3D, Microsoft (2017). https://apps.microsoft.com/store/detail/paint-3d/9NBLGGH5FV99

Procreate (2011). Savage Interactive https://procreate.com/

Rose, D., & A. Meyer, (2002). *Teaching Every Student in the Digital Age: Universal Design for Learning*. 1st ed. Association for Supervision and Curriculum Development (ASCD)

Rotgans, J. L., & Schmidt, H.G., (2011). Situational interest and academic achievement in the active-learning classroom. *Learning and Instruction*, 21(1), 28-57. https://doi.org/10.1016/j.learninstruc.2009.11.001

Rovai, A. P. (2002). Building a sense of community at a distance. *International Review of Research in Open and Distance Learning*, *3*(1), 1-1. https://www.irrodl.org/index.php/irrodl/article/view/79

Rovai, A. P., & Downey, J., R. (2010). Why some distance education programs fail while others succeed in a global environment. *Internet and Higher Education*, *13*(3) 141-147. https://www.sciencedirect.com/science/article/abs/pii/S1096751609000281?via%3Dihub

Rush, P. (2015). Isolation and connection: The experience of distance education. *International Journal of e-Learning and Distance Education*, *30*(2), 1-25. https://www.ijede.ca/index.php/jde/article/view/936/1597

Salmon, G., (2013). *E-tivities: The key to active online learning*. 2nd ed. Routledge.

Schiefele, U., Krapp, A., & Winteler, A., (1992). Interest as a predictor of academic achievement: A meta-analysis of research. In K.A. Renninger, S. Hidi & A. Krapp (Eds.) *The role of interest in learning and development* (pp.183-212). Lawrence Erlbaum Associates, Inc.

Sibbett, D. (2002). *The facilitator's handbook: A quick guide to inclusion facilitation*. 1st ed. Inclusion Solutions.

Sibbet, D. (2008). Visual Intelligence: Using the Deep Patterns of Visual Language to Build Cognitive Skills. *Theory Into Practice*, *47*(2), 118–127. https://doi.org/10.1080/00405840801992306

Simpson, L. (2000) The annual report: An exercise in ignorance? *Accounting Forum*, *24(3)*, 231 – 247.

Sway, Microsoft (2015). [Logo]. https://sway.office.com/my

Tertiary Education Quality and Standards Agency. (2017). *Characteristics of Australian higher education providers and their relation to first-year student attrition (Discussion Paper)*. Department of Education, Skills and Employment. https://www.teqsa.gov.au/sites/default/files/attrition-report-june-2017-19dec2017.pdf?v=1513650539

Teams, Microsoft (2016). [Logo]. https://www.microsoft.com/en-ie/microsoft-teams/group-chat-software

Word, Microsoft (2013). https://www.microsoft.com/en-ie/microsoft-365/p/word/CFQ7TTC0HLKM

Appendices

Appendix 1: Graphic Facilitation Digital Badge Course Acceptance Form

A prerequisite for being offered a place on this module is the agreement that you will fill out an anonymous evaluation form on completion of the module. The findings from this anonymous evaluation may contribute towards part of a presentation at a conference or published research paper. Please tick the boxes below to indicate that you are willing to participate and that you understand that the findings from this anonymous evaluation may contribute towards part of a presentation at a conference or a published research paper.

1. Full Name
2. Email Address
3. Which faculty or function do you work in?
4. What is your current job / role?
5. Are you Academic or Professional Management and Support Staff?
6. Are you full time, part time or hourly paid assistant lecturer?
7. Length of time working in your current organisation?
8. If lecturing, what subjects, levels, numbers of students?
9. How much of your time is spent working in person and how much of your time is spent working virtually?
10. If working virtually, what platforms are you currently using?
11. What is your experience of working using graphic facilitation / visual approaches?
12. What do you hope to get out of this experience?
13. What is the biggest challenge you have right now about working visually (both individually and within your organisation?
14. Is there anything else that you think it would be useful for me to know about you, or your circumstances, or your work?
15. I confirm that I am willing to complete the workshop evaluation form
16. I grant full authorisation for the use of the findings from the workshop evaluation form to contribute towards part of a presentation at a conference or published research paper on the full understanding that my anonymity is preserved.

Appendix 2: Graphic Facilitation Digital Badge Module Evaluation

A prerequisite for being offered a place on this module was the agreement that you would fill out an evaluation form. Your opinion and experience is valuable to us and will help us to

think about the future delivery of the module. Please take time to fill in the responses and be as detailed as possible. The findings from this survey may form part of a presentation at a conference or published research paper. Once you agree to participate your consent is assumed.

1. What did you like about the module? Why?
2. What did you not like about the module? Why?
3. What was the single most valuable thing you learned from this module?
4. What did you find most challenging about the module? Why?
5. How useful was the Moodle page?
6. How did you find using Sway?
7. How did you find the E-tivity aspect?
8. How did you find the in-class sessions?
9. How did you find the homework activities?
10. How much time did you spend on the module outside of class time?
11. How did you find the workload?
12. How did you find the feedback?
13. How did you find MIRO?
14. How did you find the group experience?
15. Do you think a Graphic Facilitation Digital Badge Module would be useful for the students on your course? If so, why?
16. How do you plan to implement your new skills in the future?
17. Please outline any suggestions you have for improving this module?
18. How would you describe this module to someone who is interested in doing it?
19. Who do you think this course is most helpful to?
20. Do you think this course could be scaled up to deliver to a larger cohort?
21. What do you think about a self-paced learning version of this course? (This would entail lesson plans with mini recorded video demonstrations and homework but no live interaction)
22. What arrangements did you have to make to attend this course (childcare, meeting rescheduling etc)?
23. What did you think of the methods of communication (forums, emails etc)
24. What time of year is the best time for running this course?

25. Would you consider doing this course through the summer?
26. Other than Graphic Facilitation skills, were there any other benefits you experienced from being a participant on this module? If so, what were they?
27. How much experience did you have with technology before starting this course?
28. How much experience did you have with teaching online before starting this course?
29. If there is anything else that we have not asked you that you would like to comment on please do so here
30. I grant full authorisation for the use of these findings to form part of a presentation at a conference or published research paper on the full understanding that my anonymity is preserved.

---

[i] The iNote project began in 2019 and covered a three year period. The focus was to provide opportunities to transform the higher education experience in the Connacht Ulster Alliance institutes (now Atlantic Technological University). It was funded by a Higher Education Authority Innovation in Teaching and Learning award to build digital capabilities in the region.