Coexistent Perspectives

ADCD7001

Design Thinking: From Process to Product
-
Teaching Graphic Design in Higher Education

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Table of Contents

Introduction *4*
Teaching in Higher Education *5*
The Origins of Visual Communication *7*
Information Vs Knowledge *11*
Design Thinking in Education *14*
The Instructional Design Model *16*
Conclusion *25*
Bibliography *27*

List of Illustrations

Figure 1: DAI, Göbekli Tepe Project (2012). *Pillar 43 in Building D displays low reliefs of different animals, insects and an ithyphallic human figure*. [Photograph] Available at: https://whc.unesco.org/include/tool_image_bootstrap.cfm?id=165846&gallery=site&id_site=1572 (Accessed: 14 December 2022).

Figure 2: von Petzinger, D. (2016). *La Pasiega Inscription*. [Photograph] Available at: https://ideas.ted.com/what-the-mysterious-symbols-made-by-early-humans-can-teach-us-about-how-we-evolved/ (Accessed: 14 December 2022).

Figure 3: IDEO (2022). *Annette Diefenthaler*. [Photograph] Available at: https://jp.ideo.com/people/annette-diefenthaler/ (Accessed: 14 December 2022).

Figure 4: Kurt, S. (2021). *Gagne's Nine Events of Instruction*. [online] Educational Technology. Available at: https://educationaltechnology.net/gagnes-nine-events-of-instruction/ (Accessed: 14 December 2022).

Figure 5: Kurt, D.S. (2022). *Merrill's Principles of Instruction*. [online] Education Library. Available at: https://educationlibrary.org/merrills-principles-of-instruction/ (Accessed: 14 December 2022).

Introduction

In this piece of writing, I will explore the theme of; Design Thinking: From Process to Product. I have written an essay that researches and analyses the role of a university lecturer specialising in graphic design. The role of the lecturer and their relationship with students is examined through research into the field. I wanted to write a functional essay which I could use as research for a position I will one day fulfil. I have been a student all my life, and if I am to progress into becoming a lecturer one day, I must exhaust all aspects of being a teacher. I will explore the explicit findings of the world's oldest forms of visual communication from Göbekli Tepe and the work of Genevieve Von Petzinger. Reflecting on the work of Eli Ghazel and Annette Diefenthaler, I will use their conventional way of perceiving the role of the teacher as a catalyst for further research and investigation into the position. This essay will focus on how instructional design is applied to the classroom by utilising design thinking. I will explore the work of Robert Gagne through his 'Conditions of Learning' instructional design model and compare it to Merrill's Principles of Instruction.

Teaching in Higher Education

Higher education lecturers research and teach academic and vocational subjects at universities and higher education colleges. The average salary of a higher education lecturer is between £33,000 - £54,000 per year (Service.gov.uk, 2019). With hours typical of 36-38 hours a week, weekday evenings must be flexible. A good degree pass is needed to become a university Lecturer, usually a 2:1 or higher in the relevant field (UCL, 2018). Once achieved, a postgraduate master's and then a PhD should be completed; while not essential for smaller universities, it is advised for the longevity of a teaching career. Whilst in the role, it is expected that a teaching qualification is completed alongside the job; this is usually in the form of a university-led Postgraduate Certificate in Education (PGCE).

A university-led PGCE trainee will have more opportunities to study and reflect than a school-led trainee; this will also give more opportunities to learn from the lectures within the university. A PGCE usually lasts for around nine months; during that time, the trainee will have to plan lessons, teach, and mark assignments, all while meeting PGCE deadlines. As well as teaching this qualification will focus on learning theory, managing classroom behaviour and current educational issues. A trainee will be expected to meet the professional standards for standards if they are to be recommended for QTS (Department for Education, 2011). The qualification will involve modules covering key teaching and learning issues. The trainee will have to build their knowledge on the subject while developing the skills required for teaching

the material. The PGCE will also include studying the fundamental theories and teaching policies to evaluate the best models to practice. Reflection is a significant part of the training as it will require an individual to self-assess their strengths and weaknesses in the classroom by questioning the relevance of the material and if it works (Swain, 2019). Whether a trainee or qualified teacher, constantly learning and participating in research related to their specialism is essential. It is helpful to pick up as much experience as possible while at the postgraduate level; this can be achieved by taking on voluntary roles during the master's or PhD, whether a classroom role or running workshops.

Once qualified, a lecturer has three main aspects to focus on: teaching, research, and administration. Teaching is at the core of being a lecturer; this involves delivering lectures, seminars, and tutorials, designing course modules, organising teaching materials, and developing and implementing new teaching methods to show a correlation to new research. Set, mark and moderate examinations and assessments. Lecturers are expected to support students and carry out administrative tasks such as student enrolment, inductions and involve themselves in committees and board meetings. Establish collaborative links with other institutions and industrial, commercial, and public organisations (Prospects.ac.uk, 2019). In a new age of blended learning, delivery of online material will likely be essential. As the role of the lecturer progresses, more responsibility will present itself in the form of mentoring, managing, and supervising other staff. This will involve curriculum development and course design responsibility at a senior level.

The Origins of Visual Communication

Figure 1: *Pillar 43 in Building D* (DAI, Göbekli Tepe Project, 2012).

The last chapter looked at the requirements to become a higher-education lecturer. It was established that participating in research related to their specialism is essential. Therefore, the chapter will focus on the origins of visual communication through the investigation of Göbekli Tepe and the work of Genevieve von Petzinger. These findings were made in the last decade and have forever changed history books. Therefore, it is crucial to include them as part of the specialism of visual communication, the absolute backbone of modern graphic design.

Everything known today stands on the shoulders of those who have come before. The oldest example of this comes from the neolithic archaeological site of Göbekli Tepe in the South-eastern Anatolia Region of Turkey, dated c. 9500 BCE (Clare, 2020). This site houses the world's oldest known megaliths. Within the enclosure, D stands pillar 43, named the "Vulture Stone", considered one of the world's most important artefacts (Legacy of the Sages, 2022). This T-shaped standing stone shows asterisms through the depiction of a series of figures meant to depict bright star clusters in the night sky.

There is a scorpion, alluding to the constellation "Scorpius". Above Scorpius is expected to be "Sagittarius". The archer with a bow and arrow; is depicted through a vulture. Its wings spread at the right angle representing the "bow and arrow". The pillar houses even more animal symbols to correspond to more constellations to represent a map in the night sky. It is believed that the central circle on the pillar represents the Sun. When the Sun is in a particular position relative to the constellations, it indicates a date or "date stamp" (Legacy of the Sages, 2022). The three animals atop pillar 43 appear next to representations of three sunsets, believed to depict four critical moments in the solar year, the summer solstice, the winter solstice, and the spring and fall equinoxes. The carvings represent asterisms that appeared in the night sky behind or around the setting sun on each key date of the calendar year. The idea is that this is a date inscribed in stone in the universal language of astronomy. The date is about 10,900 to 10,800 BC, more than a thousand years before construction began at Göbekli Tepe (Unesco, 2018). Within

that short span of around 100 years, there was a dramatic cataclysmic event known as the Younger Dryas. Construction of Göbekli Tepe started precisely at the end of this cataclysm and housed the world's oldest form of visual communication. The date of this event is preserved in stone as a warning for future generations. A suggestion that a catastrophe of this magnitude could happen again and needed to be known.

Figure 2: *La Pasiega Inscription* (von Petzinger, D. 2016).

Genevieve von Petzinger is a paleoanthropologist and rock-art researcher. Von Petzinger studies the ice age art of European caves, such as '*La Pasiega Inscription'* in La Pasiega, Spain. In 2007, von Petzinger was intrigued by the geometric shapes in these caves. von Petzinger and her husband spent two years and three hundred hours compiling a database of these ice age shapes within the caves of France, Spain, Portugal, and Sicily (TED, 2015). Petzinger had compiled 32 signs that reappeared in different caves over 30,000 years and across the entire

continent of Europe, ending around 8000 BC. She believes this was the invention of graphic communication and concluded that whatever their original meaning, they changed the course of human communication forever (von Petzinger, G 2016).

Information Vs Knowledge

Communication is to exchange of information through speaking, writing and other mediums. After investigating the current known origins of visual communication, this essay will look at breaking down communication. A successful teacher needs to recognise the difference between data, information, and knowledge, as these are the building blocks of basic communication. Furthermore, the success of a lecturer demands a change with the times. Teachers can reinvent themselves to improve the educational system by taking things back to basics.

According to Eli Ghazel, 'The Teacher' role is outdated. In the past, the teacher's role was to provide information to its students. In the modern day, the amount of information we are exposed to is constantly expanding. With so many avenues of information, the teacher must now focus on helping students convert information into knowledge and assess a child's capacity to convert that information (TEDx Talks, 2016).

Knowledge is what we know. There is a prior knowledge people have in their minds called 'a priori'. The sense of danger when standing on a cliffside is the knowledge that nobody must teach, called innate knowledge. The knowledge that can be formed or recollected from the natural sense within the human body is heat, light, taste, smell, and pressure. An individual can compare, contrast, match, classify

and define with these senses. The basic engine of converting information requires a person to process and respond to the information given (TEDx Talks, 2016).

As the role of 'The Teacher' changes, the noun given to the occupation should change. Ghazel suggests that teachers should see themselves as 'Learning Designers'. Teachers who see themselves as 'designers' feel more confident trying new teaching methods. There is the absolute pressure of having the students' future within a teacher's hands; however, with the confidence to make low-risk changes, it will be easier to make more high-risk decisions with the student's best interests at heart.

As previously stated, the 'Learning Designer' role checks the student's ability to convert information into knowledge. This can be achieved if a person can take new information by comparing it, matching it, and classifying it; this scenario is called an assessment tool. It is vital to design differentiation in the classroom (Victoria State Government, 2019). This ensures that students at different starting points on the course can receive a tailor-made learning experience that they need to develop and thrive. This can be achieved by using the basic engine to convert information and changing the variables to suit the student. Information can either be more accessible or less accessible, depending on the student's abilities. The process can be either more or less complex, e.g., matching words to a picture is more straightforward than writing down each picture, and an assessment can be true or false versus written answers. It is essential to know how the answer was found rather than if it is correct. Rather than taking a multiple-choice test and not knowing why the answers are

wrong, designing the assessment requires the user to compare and analyse information by producing the answers themselves.

Design Thinking in Education

Figure 3: *Annette Diefenthaler* (IDEO, 2022).

With an understanding of how the role of the teacher is changing from a ground level, it is then plausible to apply the change on a larger scale. This is done by exploring design thinking in education. Design thinking uses a designer's workflow to solve problems innovatively, focusing on human-centred techniques. Design thinking uses a non-linear process that includes 5 phases: empathy, definition, ideation, prototypes, and testing (Dam and Siang, 2019). Design thinkers start from a human-centred perspective. For example, by using design thinking techniques, a teacher most effectively re-designs a classroom by looking to the pupils for suggestions, for example, by changing the height of the bulletin boards to read them and gain better access. The re-design results in the children taking ownership of them, curating, and

referencing them (TEDx Talks, 2014). Students know what is engaging, exciting and curious and what they want to learn.

Designers have many tools that enable them to find a need through an empathetic perspective. When using design thinking in education, imperfect solutions might produce perfect results. Putting prototypes into practice will generate feedback that will slowly but surely come to a solution that addresses the need for re-design. One of the most famous design thinking agencies is IDEO. IDEO hires people from many disciplines to solve real-world problems. Their model highlights the detrimental effects of teachers working alone (IDEO, 2018). Design thinking brings people together in a meaningful way. If educators do not have meaningful experiences of collaboration, how will they be able to model that for their students realistically.

Teachers need to be thought of as designers to stay relevant. Designers are optimistic in that they look for inefficiencies as opportunities for change. By identifying the needs of a sector like education, designers can identify meaningful solutions. Designers are problem-solvers, and education has a slew of problems. Educators who have gone through small exercises feel more comfortable challenging much bigger problems. By having teachers regard themselves as designers, a much better system would be possible if they believed they could effect change.

The Instructional Design Model

Teaching is information design, by taking the basic design model and applying it to lesson planning. The model would look like this; what is it a teacher is trying to communicate, who is the teacher communicating it to, how does the teacher get the students to engage with the material and have the students retain the information and convert it into knowledge. This kind of information design used in education is called instructional design.

An instructional design model provides guidelines that help develop and organise pedagogical projects to achieve a certain level. It is a formula that helps educators break down the material and help visualise the teaching by putting it into steps. Having a model in place saves time by using a systematic process (Purdue University Online, n.d.). It is crucial to find out whether using a specific model will benefit an organisation; otherwise, using a strategic plan that is not relevant will waste time and ultimately cost money. Figuring out the appropriateness of a system will also lead to discovering problems that have yet to be seen prior to the initial assessment.

The origins of instructional design procedures have been traced back to World War II, when several psychologists and education specialists were inducted to create material to train several thousand soldiers (Dick, 1987). These individuals included Robert Gagné, Leslie Briggs and John Flanagan. Tests were created to screen

individuals to become soldiers, examining intellect, psychomotor capabilities, and perception. The creation of this initial screening device significantly increased the number of individuals that completed the mandated training that came after (Gagné, 1985).

Robert Gagné was an American psychologist best known for his 'Conditions of Learning' instructional design model. Gagné's model involves 'Nine Levels of Learning' that provides a step-by-step approach to help educators structure their training most efficiently.

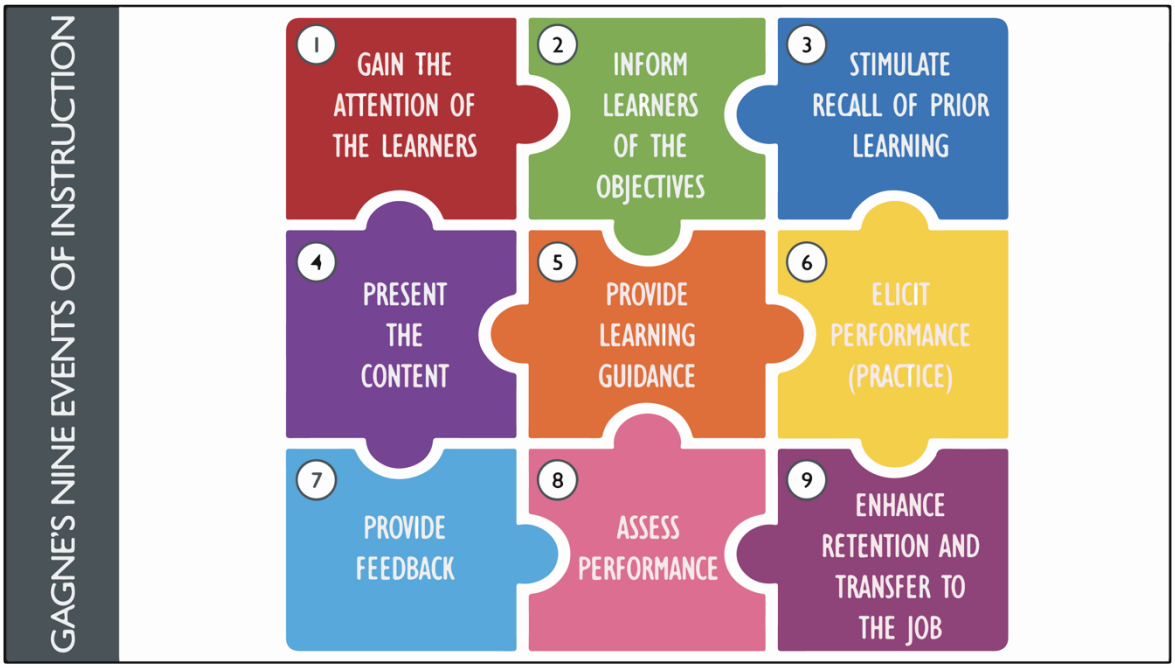

Figure 4: *Gagne's Nine Levels of Learning* (Kurt, 2021).

The first level of the model is gaining the attention of the learners. This can be achieved by utilising a series of techniques. Patience in the form of silence can be a

valuable attribute for teachers to express the importance of having the student's pay attention. On the contrary, given the appropriation, introducing a class to a popular song that matches the teacher's energy gives the class an indication of when the session will start. A sense of give and take raises morale by setting the tone, piquing the interest and interaction with the subject matter. The salvation of attention can also be achieved in many ways, whether striking a Nepalese singing bowl or turning the lights on and off; these are unorthodox methods of regaining attention by disconcerting the class; however, teaching is about finding what works and what does not.

The second level of the model is informing the learners of the objectives. For example, a lecturer needs to be clear and communicate the expectations from the offset. Assignment briefs are an excellent tool for teachers and students to refer to during the extent of their modules. While providing an overview of the task at hand and expectations of interim deadlines, the brief does not account for the measurable criteria of each student. Therefore, the lecturer requires a human-centred approach to learning involving the students, perhaps even on a one-to-one level, to determine their understanding and knowledge of the task.

The third level of the model is stimulating the recall of prior learning. This could be asking questions about the subject to assess prior knowledge. Based on the response, a quick summary of past lessons might be helpful as a refresher to learners, along with audio-visual presentations of past material.

The fourth level of the model is presenting the content. Every lesson must be carefully planned out and thoroughly researched. Let the lesson breathe by keeping time for group discussions and spontaneous discourse. It is essential to incorporate various delivery methods that keep students interested and engaged; This can include physical demonstrations where appropriate, student lead enquires, group projects and readings. Also, experimental technology is used for learning and engagement, e.g., making use of blogs and forums.

The fifth level is providing learning guidance. At the start and duration of a module, it is beneficial to provide an example of suitable outcomes for submission. For instance, in a lesson, if students are asked to build a portfolio of work, it is valuable to them to be shown an example of a successful portfolio. Lecturers should refrain from giving full access to avoid plagiarism or confine the students to only one way of thinking. Other aspects, including engaging examples, are visual literature, stories, role-playing and other creative outlets that do not revolve around one way of learning. The material taught must be retained. By using unorthodox teaching methodology, there stands a greater chance of a teacher leaving a meaningful impact on a student.

The sixth level is eliciting performance (practice). Completing all prior levels provided the scaffolding needed for this level, as it requires student participation. The student needs to display retention of information and an understanding of the material taught until now. This will ensure the conversion of information into knowledge. Ways of eliciting performance include interim deadlines, group projects,

essays, presentations, and exhibitions. This allows lecturers to gauge the success on an individual and class level.

The seventh level is providing feedback. There are many forms of feedback, including informal and formal feedback. Informal feedback usually happens spontaneously throughout the student's module. Effective informal feedback is built on a solid rapport with the students; this way, they are more likely to adhere to the guidance provided. Formal feedback is usually a result of a student's performance, good or bad. A student can be formally recognised for their achievements by lecturers and senior staff.

Furthermore, students struggling with the course material might be formally monitored on their progress and need extra support like study skills or private tuition. Similarly, there are formative and summative feedback forms, and they usually coincide with term deadlines. Formative deadlines are a great way to set checkpoints throughout a module, setting expectations on progression for specific dates. These deadlines are a great way for students to conduct themselves competently in a safe space. Failure to complete a deadline will not fail the student at this time, but the feedback will feature why it was not met and reinforce the importance of staying on track, as this will not be the case for summative deadlines. Summative feedback usually occurs at the end of a module. Formal feedback transpires after deadlines within a set timeframe. For example, 28 working days after submission, a lecturer will be expected to mark and assess the student's work which will be handed back within the stated 28-day period.

The eighth level is assessing performance. An example would be when modules feed into the next on some level. A lecturer can design the following module to use the skills that should have been learned, forcing the student to display competencies to a standard to progress. If students cannot build upon the skills learned previously, this might reveal gaps in teaching or issues regarding the student that can be addressed.

The ninth and final level is enhancing the retention and transfer of information. These can be achieved by demonstrating how taught skills and information is relevant and how they are linked in one way or another. By issuing self-directed study, the student is forced to interpret and apply what they have learned that links with real-life scenarios concerning the student's prior knowledge.

Gagné's model is systematic and simple to follow. The model follows a logical order, providing confidence to implement the educator. The model can be used in a multitude of scenarios. However, Gagné's model is more suitable for foundation or first-year students. The model requires the learner to follow the guide to learn a new skill instead of independent problem-solving. This model is beneficial for laying out foundations in an educational setting. However, for students to thrive, further design models might be implemented to keep students engaged with the learning process.

Like anything, there are always alternatives, as there is no right way of learning. Alternative models that should have an honourable mention are the ‘ADDIE’ model,

the ‘Empathetic Design’ model and ‘The Theory of Transactional Distance’. However, for this instance, a comparison will be made between Gagné's Conditions of Learning with Merrill's Principles of Instruction.

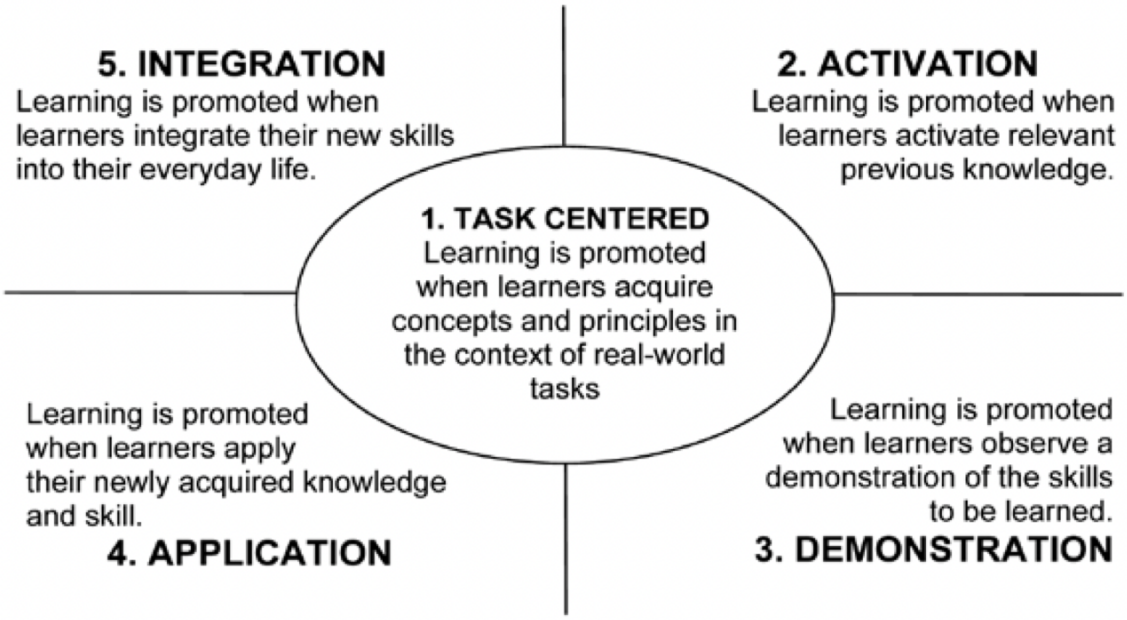

Figure 5: *Merrill’s Principles of Instruction* (Kurt, 2022).

Figure 5 represents Merrill's ‘First Principles of Instruction’. This model was created by Marriner David Merrill, an educational researcher specialising in instructional design. Merrill believes that as technology has evolved and things have become more accessible for humans, the effectiveness of instruction has decreased (mdavidmerrill, 2008). Similarly, to Ghazel's interpretation of the rise of technology, Merrill believes many websites these days are just information dumps and refers to these as quoted “shovel ware” (mdavidmerrill, 2008). In this case, he refers to diluted educational courses that are less effective than traditional teaching. Firstly, Merrill states that teachers are to demonstrate to students what they are trying to teach. Secondly, He states that students need time to practice what they have learned.

Multiple choice exams are ineffective; they must show the cognitive ability to convert information into knowledge. This involves the student carrying out a procedure or participating in complex tasks relevant to the material learned. Finally, Merrill talks about student motivation and the misconception that motivation lies through "animation, games and edutainment" (mdavidmerrill, 2008). Merrill believes this is not true. "Real motivation comes when students do something they were unable to do before" (mdavidmerrill, 2008). Students can only learn something when these principles are in place effectively.

Compared with Gagné's 'Conditions to Learning', this model is more appropriate for continued higher and final year learning. Similarly, to Gagné's framework, Merrill's model uses a systematic approach when designing an instructional model. They share similarities; Merrill's principle two relates to the first three stages of Gagné's model, principle three relates to both the fourth and fifth levels, principle four relates to six through to eight, and both models share the same final step.

The main difference is that the first principle of Merrill's model focuses on a task-centred approach. This involves constructing a brief that includes concepts and principles that apply to real-world scenarios, also known as 'Problem-Based Learning' (Cornell University, 2010). Gagné's framework does not include this, so it might be classed as less effective. The model is not too dissimilar when the initial real-world problem is identified. Like stages to a design model, there is a time and place where the models might benefit from each other in different scenarios. For

example, Gagné's model would be suited much better to introduce students to new skills and information. By laying down the fundamentals, this would be more applicable in the first year or foundation courses. As the course progresses, so should the tasks' complexity and application. So, introducing real-life problem-based learning or applying Merrill's model in the middle and latter stages of the course might prove more effective.

Conclusion

There is a multitude of factors that need to be met to become a successful graphic design lecturer in higher education. This starts with an overview of the essential qualifications, including a bachelor's degree, a master's degree, and a postgraduate certificate in education. This postgraduate qualification is usually completed whilst in a lecturing position or classroom environment. This qualification focuses on learning theory, managing classroom behaviour, and tackling current educational issues. Once qualified, a lecturer will focus on teaching, research, and administration. It is crucial for a lecturer in this position to stay relevant in conjunction with new research and teaching methods. Graphic design was the specialised subject area for this essay. Therefore, research into visual communication's origins was key to setting the foundation for the other chapters. A 2022 Netflix documentary called '*Ancient Apocalypse*' has brought Göbekli Tepe and other significant archaeologic sites into the mainstream mind. This documentary challenges and rewrites the history books; even older forms of visual communication have been discovered through this revision. Communication is at the forefront of teaching, and the exchange of information is at the forefront of communication. That is why it has been essential to delve into the basic understanding of the differences between data, information, and knowledge. New methods emerge with efficacy through a thorough understanding of the basics. A massive subset of graphic design is information design. Teachers need to see themselves as information designers because that is what they do. This is the single most crucial step in applying design thinking to education.

This essay analysed Robert Gagné's 'Conditions of Learning' with Merrill's 'Principles of Instruction'. The most crucial factor is the application of appropriate instructional design models. One size does not fit all; however, some models are better suited to different scenarios than others. It is, however, imperative that teachers apply these models to the classroom. A teacher must be comfortable with learning new things. The status given as a teacher should not cause complacency or delusion to a hierarchal separation between teacher and student. Teachers need to live and breathe a student-centred approach in their work and recognise the ebb and flow needed between each other to achieve success. Without one another, they cannot exist.

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