



Improvisation and Design Thinking for Teachers

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Background

This guidebook is part of an initiative to incorporate improvisation and design thinking into the teaching practices of tutors¹ and teachers at the University of Hong Kong (HKU). The project responds to HKU's Teaching and Learning strategy of "Delivering to Our Students: Undergraduate Teaching and Learning Strategy 2021-28" and the need to prioritise the undergraduate learning experience at HKU.

The project was started because there was a lack of formal professional development for university tutors around how to facilitate and teach online and face-to-face in ways that support the development of undergraduate educational outcomes.

The development of this guidebook comes in the background of increased demands on teachers forced by the COVID-19 pandemic, the disruption of generative artificial intelligence, the evolving future of work, and the multitude of changes to the university teaching environment. Given these recent challenges, there's a pressing need to expand the repertoire of our front-line tutors and teachers to elevate the teaching and learning experience for students who face volatility, uncertainty, complexity, and ambiguity.

This guidebook is our response to these needs, offering a foundational perspective of teaching and learning through improvisation and design thinking. It also presents actionable strategies and exercises designed to enhance interdisciplinary teaching techniques, particularly suited for small classroom settings.

The materials draw on the idea of improvisation as a cyclical and reflective process of structuring learning experiences based on personal interaction (Montuori, 2003), coupled with design thinking as a means of creative problem-solving (Buchanan, 2015). These approaches promote a flexible and active exploration of ideas.

By developing tutors' and teachers' skills in improvisation, we aim to provide them with an array of strategies and techniques to elevate student engagement and enhance their problem-solving skills. This, in turn, helps students unpack better and apply the concepts, theories, and ideas they encounter in large classroom lectures and small group tutorials.

¹ Tutor is a broad and inclusive term that may refer to teaching assistants, demonstrators, lecturers, professoriate staff, and other academics that teach small-class room environments. Tutors lead tutorials, workshops, practical and laboratory sessions, study session, and other smaller group teaching and learning contexts. Whether face-to-face or online, these smaller group interactions are critical opportunities to work closely with students and understand their progress in learning.

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Interdisciplinary Teaching in Contemporary Contexts

The assertion that higher education is undergoing significant transformation is almost becoming a cliché.

The age of digitisation started the commodification of knowledge. This trend was accelerated with the pandemic-induced shift to online learning as non-traditional educational providers competed with universities to deliver digital content. Coupled with the precarity of employment and the emergence of generative artificial intelligence, this normalised the demands by students for a better quality of learning. Students are now seeking unique experiences at university. They want to connect with students online (where they live, learn, and socialise) and face-to-face. They want teachers to facilitate interactive and engaging learning experiences. They want to know the relevance of their learnings and how it will lead them to a good life and contribute to society. They want to understand how the skills and values they learn will be applicable in the real world.

Preparing students to tackle the complex “wicked” challenges that societies face requires interdisciplinary integration and a new way of learning. The 2018 Organisation for Economic Co-operation and Development (OECD) Future of Education and Skills 2030 (OECD, 2018) report highlights students' need to cultivate core competencies to navigate an uncertain future effectively. These include the development of curiosity, imagination, resilience, and self-regulation. Moreover, students must respect diverse ideas, perspectives, and values. Equally important is their ability to manage failure and rejection and to persevere through challenges.

Universities have often struggled to create a culture conducive to developing these capacities for students. Teachers urgently need to find ways to cultivate critical thinking, creativity, teamwork, innovative problem-solving, and social-emotional skills such as resilience, self-regulation, and curiosity. Yet, teachers frequently report feeling unprepared and lacking the essential skills to teach these capacities effectively.

This guidebook responds to this issue by drawing on improvisational and design thinking methodologies to offer teachers an adaptive framework to think about their teaching practices. It also encourages teachers to engage in a more conversational and authentic teaching style that draws on their personal and professional backgrounds and experiences. Through personalised and unique interactions, we believe teachers more easily engage students cognitively, affectively, and behaviourally.

Educational psychologist Lev Vygotsky used the word *obuchenie* to encapsulate the idea that teaching and learning go hand-in-hand and happen simultaneously. From this perspective, teachers are active and continuous learners as their teaching unfolds. Therefore, their professional growth and identities are inextricably linked to their students' learning journeys. As you guide your students through the exercises in this guidebook, we encourage you to don the hat of the student. Each activity applies to you as it is to your student.

1. Overview of Improvisation and Design Thinking

Improvisation and design thinking are increasingly recognised as vital components in university teaching and learning due to their potential to foster students' creativity, adaptability, and problem-solving skills. The art of improvisation allows teachers to adapt to unpredictable circumstances that embrace adaptability and innovative thinking (Sawyer, 2004). Coupling this with design thinking principles empowers them to approach teaching challenges with a solutions-oriented mindset, emphasising empathy with students, collaborative ideation, and a willingness to iterate and refine their teaching methods (Brown, 2008). Training teachers in these methodologies enhances their instructional skills and prepares them to guide students in developing the critical and creative thinking skills necessary for success in an ever-evolving world.

What is improvisation?

Improvisation is the art of spontaneously creating or performing something without preparation, a practice of adaptability and creative expression in response to immediate circumstances. Improvisation has a long history within drama education. The pedagogical benefits include opportunities for participants to respond authentically with their first instinct in a given situation. Teachers and students can learn to react to unpredictable situations and adapt to changes forced by external triggers, thereby enhancing cognitive and behavioural flexibility. Improvisation is economical because it is generally resource-light and does not require complex props, costumes or stimuli. It is well-suited for use in group settings to enable group members to combine their ideas and responses to work collaboratively and creatively. Improvisation has been characterised as a “rough-hewn”, unpolished set of strategies (Hamilton, 2001). Still, every creative endeavour needs to start with a first impulse, which can later be refined and improved upon. This crystallisation can be fine-tuned and polished to reflect a deeper consideration of the issue.

Improvisation can be a valuable tool to help university students develop these skills, abilities, and capacities. If applied sensitively by tutors and teachers, it could be a beneficial way for students to sharpen and improve their imaginative faculties, the ability to work collaboratively and creatively and provide a set of “manageable obstacles” from which students can learn and develop their curiosity and resilience when working with others and considering real-life “grand challenges”.

Improvisation framework

Improvisation encompasses four interconnected elements: skilled listening, “yes, and...” shared control, and resilience (Hadida et al., 2015; Zenk et al., 2022). Sensitive practice of the four elements can lead to the desired outcome of fostering imagination, collaborative skills, and resilience.



Diagram 1.1: Foundational tenets of improvisation

Principles	Description
Skilled Listening (Empathetic Comprehension)	Cultivate an environment of skilled listening, where the goal is not merely to hear but to understand the perspectives of others deeply. This practice involves active engagement with what is being communicated, fostering a learning space where students feel listened to, and their ideas are digested in full complexity. Role model and teach students to listen with intent, ensuring everyone's voice becomes a meaningful part of the conversation.
Yes, and... (Collaborative Ideation)	This principle is not just about accepting but actively building upon the ideas of your peers. This approach acknowledges that every contribution is a valuable piece of a larger puzzle. Please encourage students to add depth and breadth to the ideas of their peers, weaving individual strands of creativity into a rich tapestry of collective insight.
Shared Control (Democratic Leadership)	Champion the notion of shared control, stepping away from the traditional single-leader paradigm. In this more democratic form of leadership, every student has a turn at the helm, ensuring that the classroom dynamic benefits from a multitude of guiding hands and minds. This approach empowers each individual and reinforces the importance of shared responsibility in driving collective success.
Resilience (Embracing Failure as Growth)	Instil resilience by celebrating failure as a cornerstone of learning. Encourage students to view setbacks not as dead ends but as springboards for growth and understanding. By reframing failure as a natural part of the creative and learning process, students learn to bounce back with greater knowledge and confidence, ready to tackle the next challenge with a fortified spirit.

What is design thinking?

Improvisation assumes that ideas are plentiful and everyone is inspired and innovative. Design thinking provides an overall flow to solving complex and ill-defined problems, while improvisation teaches creative mindsets and collaborative techniques that fuel this process. The design thinking approach imparts to individuals new strategies for solving complex problems and generating innovative solutions based on a user-centred design approach with multi-disciplinary teams (Glen et al., 2015). Through the design thinking process, students can take ownership of their learning and recognise the significance of the course materials. Unlike the typical design process, which is intuitive and individual, design thinking consists of five phases: empathise, define, ideate, prototype, and test (Glen et al., 2015).

Phases	Application in Teaching	Description
Empathise	Engaging in Empathy	Teachers engage in empathising by actively listening to students, observing their behaviours, and asking probing questions to understand their perspectives and motivations. This deep understanding is crucial for creating impactful learning experiences tailored to the students' needs.
Define	Setting Learning Goals	Teachers articulate clear learning objectives and challenges that are directly informed by the insights gained during the empathy phase. These goals are crafted to meet the specific needs and circumstances of their students.
Ideate	Generating Strategies	Teachers generate creative teaching strategies and solutions, engaging in unconstrained brainstorming to address the defined learning objectives and challenges. This process encourages innovative approaches to teaching that can be more effective and engaging.
Prototype	Testing Instructional Ideas	Teachers create and implement a small-scale version of the instructional plans or educational tools. These prototypes are tested in the classroom setting to gather initial reactions and see how students interact with the new teaching method or material.
Test	Refining through Feedback	Teachers seek feedback on their instructional prototypes, carefully observing student interactions and outcomes to learn from the experience. This feedback is used to refine and enhance future teaching methods, ensuring a process of continual improvement in teaching practices.

Phases	Student Learning Outcomes	Description
Empathise	Cultivating Understanding	Teachers guide students in developing empathy by activities that foster active listen, observation, and engage in thoughtful questioning. This fosters an environment where students learn to understand diverse perspectives, an essential competency for adapting to varied situations and collaborating with others.
Define	Clarifying and Adapting Goals	Students are taught to articulate and adapt their learning goals based on an empathetic understanding of the context and their peers' needs. This phase hones their ability to set flexible objectives that can evolve in response to new information or changing circumstances.
Ideate	Encouraging Creative Problem-Solving	Teachers encourage students to ideate freely, generating a breadth of solutions and approaches to meet their learning challenges. This phase emphasises creativity and divergent thinking, which are key to developing flexible problem-solving skills.
Prototype	Experimenting with Solutions	Students are tasked with creating prototypes or trial solutions to their learning challenges. This hands-on phase teaches them to test and iterate their ideas in a tangible way, building their capacity to adapt and refine their strategies based on real-world feedback.
Test	Learning through Feedback and Reflection	Teachers facilitate opportunities for students to seek and reflect on feedback regarding their prototypes. This testing phase reinforces the importance of resilience and a growth mindset, as students learn to interpret feedback constructively and use it to improve their approaches and competencies.

Why Improvisation and Design Thinking?

Improv and design thinking are two methodologies that share common ground and complement each other in their flexible, adaptive approaches to problem-solving and creativity. The spontaneity of improvisation can help break down barriers and encourage out-of-the-box thinking, while design thinking provides a structured approach to identifying and solving problems. Some benefits of improvisation and DT to teachers include greater adaptability, conversational teaching, multimodal learning, authenticity, and equitable and inclusive participation by students. In addition, benefits of improvisation and design thinking to students include creativity and imagination, critical thinking, building confidence in self-expression, and authenticity from improvised performance.

Firstly, both are highly responsive to context and a deep understanding of their audiences. Improv encourages teachers and students to react in the moment to the unfolding situation. It champions shared control and collaborative input through empathy and building on the

ideas of others. Relatedly, DT demands an understanding of the student audiences' needs and the clear definition of the problem that require active listening and asking questions.

Secondly, both improvisation and design thinking place a significant emphasis on iteration. In improvisation, participants are encouraged to continuously refine their performances, learning to adapt and evolve their ideas quickly. DT mirrors this through its iterative cycles of prototyping and testing, where ideas are repeatedly put into tangible forms, evaluated, and then improved upon. The shared philosophy here is that through repetition and refinement, better and more creative outcomes are achieved.

Lastly, both methods cultivate resilience and a positive attitude towards failure. Improv teaches that missteps are part of the teaching and learning process and can lead to unexpected successes. Each attempt is a chance to adjust and pivot, embracing the "fail again, fail better" attitude. It's a cycle of trying, failing, and improving—a continuous loop where each iteration is an opportunity to learn and evolve for teachers and students. This aligns with DT's approach, which sees every test and iteration as a learning opportunity, even if the current solution is not successful. The iterative nature of both processes underscores the belief that trial and error is an integral part of making progress and achieving innovative outcomes.

2.Applications in Teaching and Learning

This section explains a few important considerations when applying improvisation and design thinking methodology in university teaching and learning and how we will present the rest of the guidebook. These methodologies call for a dynamic shift from traditional approaches to a more facilitated and guided learning experience, embracing the dual Latin roots of the word education. We will discuss the nuances of setting up activities, the focus on embodied learning, and the use of icebreakers and warm-up exercises.

The guidebook's layout will explain different approaches based on the improv and design thinking methodologies and include examples and hands-on activities to guide teachers through various structured and spontaneous multimodal and multi-contextual experiences for students, emphasising consistent practice and thoughtful reflection. The goal is to engage students in immersive activities and encourage lively participation, collaboration, and insightful responses that pave the way for group reflection and dialogue on their instructional applications. Tutors are encouraged to incorporate their unique experiences and teaching environments to develop genuine, novel practices and integrate these purposefully designed alterations into their classroom instruction. Tutors should consider how the activities may adapt to their tutorial settings.

Facilitation in Teaching

Improv and design thinking methodologies promote an interactive classroom environment where facilitation is paramount. In improv, the teacher becomes a guide, encouraging spontaneous and collaborative learning experiences that adapt to students' contributions in real time. Design thinking is based on students in a participatory design process, where their insights and ideas are solicited and valued through continuous dialogue. Both approaches foster a sense of co-creation between teacher and students, where learning is an active, shared journey rather than a one-way transfer of information.

Educare: To train or to mold

Educere: To draw out

The Latin roots of the word *education* embody two distinct philosophies: *educare*, which means to train or to mould, and *educere*, which means to draw out.

The former implies a more traditional, didactic approach where knowledge is transferred from teacher to student, and the educational process aims to shape the learner's mind with specific information and skills. This approach often aligns with a structured curriculum and standardised testing.

In contrast, *educere* suggests an elicitive teaching method, where the educator's role is to facilitate the uncovering of knowledge from within the student. This reflective process emphasises the student's own experiences and insights as the foundation for learning, aligning with the Socratic method of asking questions to stimulate critical thinking and self-discovery. It's a more personalised form of education that focuses on the individual's inner

potential and fosters an environment where the student's inherent talents and understanding can surface and flourish.

Setting up Activities

Properly setting up activities as a teacher is crucial because it ensures that students understand the objectives and expectations, maximising engagement and the activity's effectiveness. A well-structured setup also helps maintain classroom management by minimising confusion and off-task behaviour, creating a more conducive learning environment.

When giving instructions for an in-class activity, teachers should remember the following:

Clarity	Instructions should be clear and concise. Avoid over-complicating the explanation, which might confuse students and hinder their participation.
Purpose	Explain the purpose of the activity. Understanding the why behind an exercise can increase student engagement and willingness to participate. This could be given before the exercise or after as a debrief.
Demonstration	Teacher does, student do. If possible, demonstrate the activity. A visual example can often be easier to understand than verbal instructions alone.
Energy	Deliver instructions with energy and enthusiasm. Your attitude towards the activity can be contagious and set the tone for student participation.
Timing	Be mindful of the time and communicate how long the activity will take. Warm-up activities and icebreakers should be brief to maintain energy and interest without taking away from the main content of the class. Aim for 5 – 10 minutes.
Inclusivity	Ensure that the activity is inclusive and accessible to all students, taking into account different backgrounds, abilities, and comfort levels.
Support	Circulate the room to provide support, ensuring students understand and are following the "Yes, and..." structure.

Appropriately Challenging

It's vital to balance the difficulty of activities and students' skill levels to keep them engaged and motivated. The Yerkes-Dodson Curve illustrates the relationship between performance and arousal, highlighting that moderate levels of challenge can optimise learning by keeping students focused. When designing activities, aim for that sweet spot where the task is neither too easy to cause boredom nor too challenging to provoke anxiety. This can be done by scaffolding or structuring tasks to provide enough support to encourage students to stretch their abilities without overwhelming them.

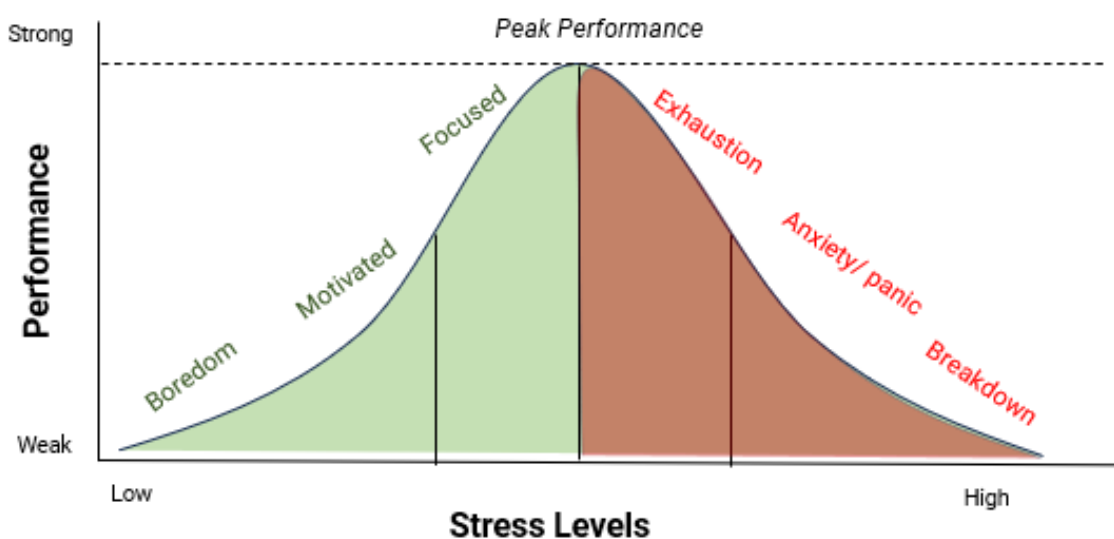


Diagram: Yerkes-Dodson Curve or Stress Arousal Curve

Teachers should remain attuned to students' behaviour and engagement levels. Signs of boredom or disengagement might manifest as a lack of participation, inattentiveness, or even off-topic conversations. You might observe students looking at the clock frequently, fidgeting, or doodling in their notebooks, indicating that the activity may not be stimulating enough for them.

Conversely, students may exhibit frustration or anxiety when an activity is too difficult. This can include a reluctance to participate, visible stress such as furrowed brows or tense body language, and increased questions that signal confusion rather than curiosity. Some students may withdraw completely, avoiding eye contact or becoming unusually quiet. You might also notice an increase in off-task behaviour as students try to escape the discomfort of a challenge that feels insurmountable.

In both instances, teachers must be prepared to improvise accordingly to disrupt these unresourceful dynamics.

A new set of language and vocabulary

Consistent integration of improvisation and design thinking grounded activities can create a new set of language and vocabulary with your students. These methodologies introduce a lexicon of collaborative innovation, shared responsibility, and empathy. Terms like "prototype," "iterate," and "yes, and..." that support a mindset of open-ended exploration and collective problem-solving reinforce the concept that the classroom is a space of mutual creation, where the paths to knowledge are not prescribed but instead discovered between the teacher and students.

Embodied Learning

Embodied learning is a pedagogical approach that involves using the body in educational practice, emphasising kinaesthetic experiences and physical engagement to facilitate learning. This concept is based on the understanding that cognition is not just a function of the mind but also the body. Many activities in this guidebook will include embodied

components and interactions with physical materials and objects. Embodied learning can lead to deeper engagement and alternative learning experiences.

Activity: Paper Portal

This icebreaker exercise is an example of an embodied activity designed to encourage problem-solving and physical movement. Students will need to work together to figure out how to cut a single A4 sheet of paper to create a large enough opening to step through without breaking the paper's continuity.

Instructions
<ol style="list-style-type: none">1. Each student is provided with an A4 sheet of paper and a pair of scissors.2. The objective is to create a continuous loop from a single A4 sheet of paper large enough for a person to step through without breaking the paper.
Solution
<ol style="list-style-type: none">A. Fold the A4 paper in half lengthwise in a long, narrow rectangle.B. Starting from the folded edge, make parallel cuts along the length of the paper, stopping about 1 cm from the opposite edge. Make sure the cuts are evenly spaced and that you do not cut all the way through to the other side.C. Make a single cut down the middle at the two short ends of the folded paper, stopping at the first and last parallel cut lines.D. Carefully open the paper and separate the cuts to expand the paper into a large loop.

Icebreakers and Warm-up Activities

Icebreakers and warm-up activities, when done appropriately, are essential for:

- 1) Fostering an inclusive, engaging, and comfortable learning environment;
- 2) Transitioning students to participate and interact in class;
- 3) Facilitating peer connections for new students who may be meeting for the first time or coming from diverse backgrounds, especially in interdisciplinary courses
- 4) Breaking down social barriers, reducing anxiety, and fostering a sense of community are particularly beneficial in promoting collaborative learning, team-based assessments, and active participation.
- 5) Energising students when energy is down, particularly in between longer classes or during the afternoon.
- 6) Making connections to course content and learning outcomes in multimodal ways.

The following table lists some of the broad categories of icebreakers and warm-up activities:

Categories	General Description	Appropriate Contexts to Use
Name Games	These activities are designed to help students learn and remember each other's names, often through repetition, rhymes, or associative games.	Ideal for the first day of class or when integrating new students into a group.
Common Ground	Activities that encourage participants to discover shared interests, experiences, or preferences, fostering a sense of connection and community.	Useful for building rapport among students or before group projects.
Energisers	Quick, dynamic activities meant to increase energy levels, often involving physical movement or lively interaction.	Great for reinvigorating the classroom after a break, during a long session, or in afternoons/evening classes
Team Builders	Exercises focused on fostering teamwork and collaboration skills, often through problem-solving tasks or cooperative challenges.	Suitable for the beginning of a new semester or before starting team projects.
Brain Teasers	Intellectual puzzles or riddles that challenge cognitive abilities and stimulate critical thinking.	Can be used to kick off a session that will involve complex problem-solving.
Creative Warm-Ups	Activities that encourage imaginative thinking and creativity, such as storytelling, drawing, or improvisational games.	Perfect before sessions that require creative output or design work.
Trust Exercises	Activities designed to build trust and empathy among participants, often through paired or group exercises that require vulnerability.	Ideal for establishing a supportive learning environment early in a course.
Reflection Prompts	Thought-provoking questions or prompts that encourage introspection and sharing of personal insights or feelings.	Useful for creating a contemplative space, often at the beginning or end of a class.
Cultural Exchange	Activities that allow participants to share and learn about each other's cultural backgrounds and experiences.	Appropriate for diverse classrooms to promote inclusivity and cultural awareness.

Categories	General Description	Appropriate Contexts to Use
Revision Icebreaker	Activities that refresh students' memory of previously covered material through interactive quizzes, discussions, or collaborative summarising.	Ideal for the beginning of a session following a break or at the start of a new module that builds on prior knowledge.

Tutors and teachers need to master a repertoire of icebreakers and warm-up activities for different circumstances to address their learning sessions' varying needs and dynamics effectively. Incorporating improvisation into icebreakers and warm-ups can enhance their effectiveness by encouraging students to think on their feet, embrace creativity, and develop confidence in expressing their ideas. They also emphasise the importance of active listening and spontaneous collaboration, valuable skills in all areas of learning and teamwork.

A caution on timing. Icebreakers should be quick and short exercises that run no longer than 5 - 10 minutes. If an exercise involves a component of reporting or sharing back to the class, you may want to select only a few students to share.

Throughout the guidebook, we will present many activities that can be adapted to icebreakers and warm-up exercises.

Activity: Hypehero

This icebreaker aims to foster a supportive and positive environment among students. Encourage students to listen actively and respectfully and to focus on presenting their partners in the best light possible. This helps build a sense of community and allows students to practice oral communication in a constructive, esteem-boosting setting.

Instructions
<ol style="list-style-type: none"> 1. Pair students up and to find out about each other and share about themselves (background, academic and extracurricular interests, skills and talents, work experiences, life experiences) 2. Students must introduce their partner but hyping up their positive characteristics and accomplishments.

Activity: Two Truths and A Lie

This introductory icebreaker is an engaging and simple social game that helps students learn more about each other while having fun. It involves each student presenting three statements about themselves—two of which are true and one that is a fabricated lie.

Instructions
<ol style="list-style-type: none"> 1. Each student thinks of two true facts about themselves and one believable lie. 2. Students take turns sharing their three statements (without revealing which is which) to the group. 3. The rest of the classes discuss and try to guess which statement is the lie.

4. After the peers have made their guess, the student reveals the lie.

Example

I have climbed Mount Kilimanjaro.
I once won a regional chess tournament.
I've never been on an airplane.

(The lie in this example could be any of the three statements, depending on the person's actual experiences.)

Working with Generative Artificial Intelligence

Incorporating generative AI (GenAI) into your teaching practice can be transformative in embracing improvisation and design thinking. GenAI applications can serve as a catalyst for creativity, spontaneity, and iterative development within your curriculum.

When applying principles of improvisation in the classroom, GenAI can generate prompts, scenarios, or data sets that require students to think on their feet and respond in real-time. This creates a dynamic learning environment where students are encouraged to practice adaptability and quick problem-solving, critical aspects of improvisational skills.

In the context of design thinking, GenAI can enhance each stage of the process. AI can analyse qualitative data to identify user behaviour or sentiment patterns during the empathise phase. For the define stage, AI can assist in synthesising information to articulate clear problem statements. In ideation, GenAI can generate a wide range of ideas or solutions that students can refine and build upon, promoting divergent thinking. For prototyping, AI can create quick mock-ups or simulations that students can test and iterate. Lastly, in the testing phase, GenAI can help gather feedback or simulate user interactions to inform improvements.

By thoughtfully integrating GenAI into your curriculum, you can enhance the teaching and learning experience, providing students with exposure to cutting-edge tools while maintaining the human-centric principles at the heart of both improvisation and design thinking.

3. Playing with Structure

Great teachers use scaffolds or frames that direct students on how to undertake an activity, leaving ample room for students to contribute their ideas. Structures may be **words, sentences, objects, images, or non-verbal cues**. Structure plus improvisation attempts to guide students on what and how to express themselves. The imposed constraint discourages students from responding with superficial, intuitive, or one-word responses, forcing deeper thinking about how to respond meaningfully. In this way, we can better evaluate the quality of students' learning.

In effect, structured improvisation supports the development of students' communication skills, creativity and critical thinking. As students navigate the structured prompts, they learn to adapt their knowledge to new and unexpected contexts, enhancing their problem-solving skills and ability to ideate with peers.

Constraints on Creativity

Teachers may believe that to unlock a student's creative potential truly, we must remove all barriers and let their imaginations run wild. However, the improvisation approach suggests that the strategic imposition of constraints can, paradoxically, stimulate deeper learning and more innovative thinking. The mantra "Limitation is stimulation" encapsulates that well-designed restrictions can act as a springboard for creativity, collaboration, and intellectual depth.

Without constraints, there is a human tendency to follow the path of least resistance. Students may default to the most accessible or familiar ideas, bypassing the opportunity for deeper exploration and innovation. Constraints disrupt this automaticity, challenging students to push past the initial layer of obvious solutions and venture into the realm of nuanced and sophisticated thought. Furthermore, creativity often thrives in a collaborative setting where individuals must pool their resources and intellect to overcome shared challenges. When boundaries are in place, students are more likely to seek diverse perspectives and work together to synthesise their findings into cohesive solutions.

The art of applying constraints in education lies in their flexibility. Rigid, inflexible constraints can be counterproductive, stifling imagination and inducing stress. Flexible constraints, conversely, offer a balanced approach that can adapt to varying student needs and learning styles. They provide enough structure to guide exploration while leaving ample room for individual interpretation and creativity.

Word and Sentence Structures

Word and sentence structures, often called linguistic constraints, are carefully crafted prompts or frameworks that guide students' verbal and written expressions. These constraints challenge students to think critically and creatively within a defined linguistic boundary. Using such structures encourages depth over breadth, precision over vagueness, and reflection over impulsiveness in the learning process.

Activity: One Word at a Time

Using a "root word" as a focal point for generating associated terms and phrases is excellent in stimulating creativity in your students. As each participant takes turns contributing, the chain of associations grows, often leading to more abstract or creative connections. Building on each other's ideas can spark tangential connections as their peers' directions inspire students.

Instructions

1. Students pair up or form small groups.
2. Choose a "root word" related to your course (or assign this to the students).
3. Students take turns with peers to call out associated words and phrases that connect back to that root.

Activity: MadLibs

Mad Libs can be a way to incorporate structured improvisation into the classroom. This activity typically consists of a sentence with keywords removed and replaced with blanks. Each blank is accompanied by a cue indicating the type of word that should fill the space, such as a noun, verb, adjective, or adverb. This method harnesses the spontaneous and unpredictable elements of improvisation, while the structure of the sentences tests students' understanding of choosing words or phrases for the context of the topic.

MadLibs may be helpful as a revision exercise to check students' grasp of the subject matter and improve their ability to communicate about it effectively.

Instructions

1. Provide the class with a MadLib sentence structure and a topic.
2. Go around the classroom and ask each student (or group of students) for words or phrases that matches the blanks.

Examples of MadLib structures:

While _____ seems like _____, _____ is much better because _____.

I don't know if you know about _____ and if you don't, try looking at _____ because it will show you _____.

It's _____. It doesn't _____.

Examples

Topic: Buddhism and Chinese Culture

While exploring Chinese culture might seem like a simple historical endeavour, diving into its Buddhist influences is much better because it reveals the intricate interplay between spirituality and daily life over millennia.

I don't know if you know about the embodiment of compassion in the figure of Guanyin, and if you don't, try looking at studies on the transformation of Avalokiteśvara because it will show you the adaptability of Buddhist icons to resonate with Chinese values and aesthetics.

It's a cultural bridge. It doesn't merely commemorate the deceased, but connects the living with the spiritual heritage of Buddhism through the practices of the Yulanpen Festival.

Activity: Yes, and...

The "Yes, and..." activity is a structured improvisation technique that teaches the power of affirming and building upon others' ideas. It is a foundational exercise in improvisational theater that encourages active listening, collaboration, and open-mindedness. An educational setting helps create an inclusive classroom culture where students feel supported and confident in contributing their thoughts because all ideas are valued. The activity fosters a sense of ensemble and collective creativity, as each person's contribution is valued and serves as a building block for further dialogue and idea development.

Instructions

1. Divide the class into pairs or small groups. Small groups ensure everyone gets a chance to participate.
2. Explain the basic principle of "Yes, and..." – each person must accept what their partner or group members say ("yes") and then expand on it ("and")
3. Model the activity with a student or another teacher to show how it's done.
4. Give the groups a topic or prompt to start with. This can be related to the lesson content or something neutral to practice the technique.
5. One person begins with a statement or idea, and the next person responds by first saying "Yes, and..." then adds new information or ideas to build on it. ..." (e.g. Person A: "Let's go to the supermarket." Person B: "Yes, and let's get cucumbers." Person A: Yes, and let's make a salad.")
6. The process continues with each participant responding with "Yes, and..." to the addition made by the previous person.

Example

Topic: History, vision, potential, and limitations of the Metaverse

- Student 1: "Yes, and the metaverse has its roots in science fiction, with early concepts appearing in novels that imagined vast, immersive virtual worlds where people could interact."
- Student 2: "Yes, and the vision for the metaverse is to create a fully-realised digital universe that offers experiences as rich and interactive as the physical world through augmented reality and virtual reality."
- Student 1: "Yes, and computer vision technology is crucial for AR and VR because it allows computers to interpret and understand the information from the visual world, enabling us to overlay digital information onto the real world or create entirely immersive environments."
- Student 2: "Yes, and with advancements in computer vision, AR and VR experiences in the metaverse can become more intuitive and seamless, making it possible for us to use gestures and interact with the digital environment in a natural way."
- Student 1: "Yes, and beyond just interaction, blockchain technology is fundamental for establishing digital ownership in the metaverse, ensuring that items and assets can be securely owned, bought, and sold, much like in the real world."

- Student 2: "Yes, and with blockchain, we can have a decentralised system for the metaverse that supports the creation of a digital economy, complete with NFTs (Non-Fungible Tokens) for unique asset ownership and cryptocurrency for transactions."

Activity: Yes, but...

Following the concept of "yes, and..." which emphasises building on others' ideas, the exercise "yes, but..." takes a slightly different approach often used to introduce a critical thinking element into a conversation or brainstorm. In "yes, but..." a participant acknowledges the proposition and introduces an alternative perspective, contradiction or critique, promoting critical thinking by analysing potential flaws and limitations, and being more confrontational. However, "yes, but..." must be used judiciously as it can potentially halt the flow of creative ideas by introducing doubt or opposition, which may lead to a more defensive or less collaborative environment if not managed carefully.

Instructions

7. Divide the class into pairs or small groups.
8. Explain the basic principle of "Yes, and..." – each person must accept what their partner or group members say ("yes") and then expand on it ("and")
9. One person begins with a statement or idea, and the next person responds with "Yes, but..." then adds a counter-suggestion. (Example: Person A: "Let's go to the supermarket." Person B: "Yes, but our refrigerator is broken." Person A: "Yes, but we still need to eat.>").
10. The process continues with each participant responding with "Yes, but..." to the addition made by the previous person.

Example

Topic: Fashion, Politics, and the Global City

Student A: Fashion is a powerful political tool and can be used to challenges wealth inequality directly.

Student B: Yes, but wearing a statement doesn't necessarily incite policy change; it may simply be performative activism that fades quickly.

Student A: Yet even everyday clothing choices can signify political stances, as seen with the symbolic yellow vests in the Paris protests.

Student B: Yes, but does that symbolism actually shift public opinion, or does it only resonate within groups that already share those views?

Student A: The lack of scholarly attention on fashion's political impact, which this course addresses, might be why we underestimate its potential for societal change.

Student B: Yes, but considering fashion as a commercial commodity might suggest that its political messages are compromised by consumerism.

Temporal Structures

Parkinson's Law posits that work expands to fill the time available for completion. Hence, time constraints can serve as a practical boundary, heightening focus and productivity. The ticking

clock can motivate, instilling a sense of urgency that galvanises students to prioritise effectively and work with a clearer sense of purpose.

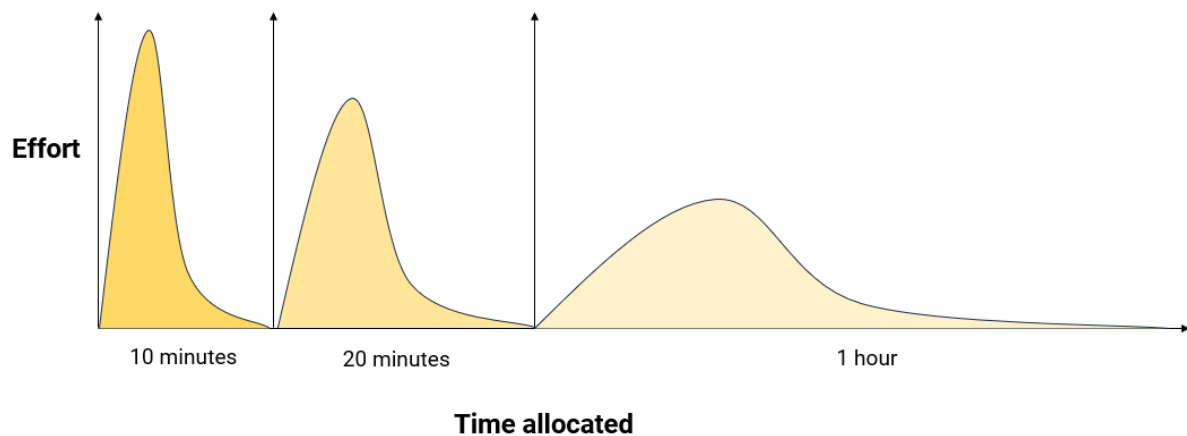


Diagram: Parkinson's Law

Consider allotting shorter durations for activities initially.

Should you notice that students require additional time, or if their feedback indicates as much, you retain the flexibility to adjust and prolong the allotted timeframe subsequently.

Object Structures

Objects can serve as powerful structures. By introducing a tangible element into a learning environment, the object can compel students to adapt quickly, weaving the object into their narrative in real-time. Similarly, objects can act as focal points for ideation and prototyping. When students are presented with an object, they are challenged to deconstruct its purpose, explore its potential, and reimagine its possibilities. This constraint becomes a springboard to encourage learners to engage in deep observation, empathetic reasoning, and creative solution-building.

Activity: Chopsticks

Using a mime activity with chopsticks employs a kinaesthetic and tactile approach to engage in the subject matter. As a method of embodied learning, students use the objects and their body language to convey ideas or processes creatively. Such activities can enliven the classroom atmosphere and provide a memorable contrast to more traditional learning activities. This activity shows how effective teaching can often hinge on the creative use of everyday objects, demonstrating that low-tech tools can be as impactful as high-tech devices in facilitating learning and engagement.

Instructions		
Setup: Prepare pairs of chopsticks. 1. Student have to mime novel and creative ways of using the chopstick and act it out (cannot be used in the conventional sense)		

Example**Topic: Corporate Social Responsibility**

- Mime the action of using an invisible pair of chopsticks to dig a small hole, place an imaginary seed or sapling into the hole, and then cover it up with dirt.
- Screwing in chopsticks as an energy-efficient lightbulb.
- Using chopsticks to scan products and removing imaginary defective products.

Activity: Museum of Whizzbanger

In this activity, students can practice and learn to think on their feet, draw meaningful parallels between disparate elements, and articulate their thoughts coherently and persuasively to an audience.

Setup

Gather a variety of random objects and place them in a bag.

Instructions

1. Students take turns roleplaying the guide and select one random object from the bag without looking.
2. Based on the object selected, the student has 1-minute to present how this “highly significant object” is important and relevance to the course topic.

Example**Topic: Responding to the Challenges of Aging Societies**

Object selected: Tea Bag

When we look at this tea bag, we can think about how consumer preferences change as populations age. Older adults might have different tastes or health concerns that affect how much tea they buy. There are economics implications for demographic changes, as we can see in developed economies like Japan, Europe, and even China. Companies and nations need to adjust their strategies or develop new solutions to cater to an increasingly older demographic.

Non-Verbal Structures

Non-verbal structures in teaching play a pivotal role in reinforcing understanding and facilitating communication beyond words. These silent techniques can range from using body language, facial expressions, and gestures to convey meaning to employing visual aids and physical activities that encourage students to interpret and express concepts without speaking.

Activity: Charades

Charades is an engaging and interactive game encouraging students to use non-verbal communication skills and quick thinking. In the classroom setting, it can reinforce course review key terms, concepts, or represent complex theories.

Setup

- List of course-related words or phrases
- Timer (optional)
- Whiteboard or chalkboard (for keeping score)

Instructions

1. Divide the class evenly into two or more teams.
2. One member of a team comes up at a time to act out a word or phrase without speaking or making any vocal sounds. Gestures, body language, and facial expressions are the only clues allowed.
3. The team has a set amount of time (usually 1-2 minutes) to guess the word or phrase. If the team guesses correctly within the time limit, they earn a point.
4. If they do not guess in time, the other team has one chance to steal for a point.
5. Teams take turns sending up a representative to act out a new word or phrase.

Note for teachers: Clearly articulate the gestures for "sounds like" and "number of words" before starting the game. Keep the energy high and encourage positive reinforcement within teams.

Activity: Still Image

This embodied exercise requires students to create physical representations of ideas and concepts that engage at a deeper cognitive processing. As an exercise in collective creativity, students must understand and build upon each other's perspectives.

Instructions

1. Divide the class into small groups of 3 to 4 students.
2. The teacher will secretly give each group a concept and idea of the course. Students need to physically represent this through their bodies and facial expressions without using props or words.
3. Students are given time to discuss and prepare.
4. Each group will then present their still image to the class. The rest of the class is encouraged to observe silently and write down their interpretations or captions of what they believe the image represents.

Optional challenge: During the preparation stage, students cannot use spoken or written language to communicate with each other.

4. Conversations and Questions

Leveraging the power of conversations and inquiries is crucial to great teaching. These approaches hinge on the teacher's ability to listen skilfully and ask meaningful questions, creating a dynamic and empathetic educational space. In improv, a teacher's active listening skills are the key to tailoring lessons spontaneously, ensuring they remain relevant and engaging while nurturing student involvement. Meanwhile, design thinking anchors itself in the art of conversation—listening intently and questioning effectively—to deeply connect with students' needs and challenges, spur inventive thinking, and refine teaching strategies in response to their input. This conversational exchange underpins a co-creative and supportive classroom atmosphere.

Art of asking questions

To master the art of facilitating conversations, mastery of questioning techniques is an essential skill. Questioning directly influences students' ability to engage critically with subject matter and can lead to the development of analytical skills, encouraging students to examine concepts deeply and synthesise knowledge across disciplines. This approach is vital in design thinking, where the ability to question effectively drives innovation and the capacity to adapt to new challenges. It cultivates a classroom atmosphere where learning is an active, student-led process, and knowledge is not merely transmitted, but discovered and constructed through a collaborative exchange of ideas.

The purpose of questions

Teachers can ask questions to:

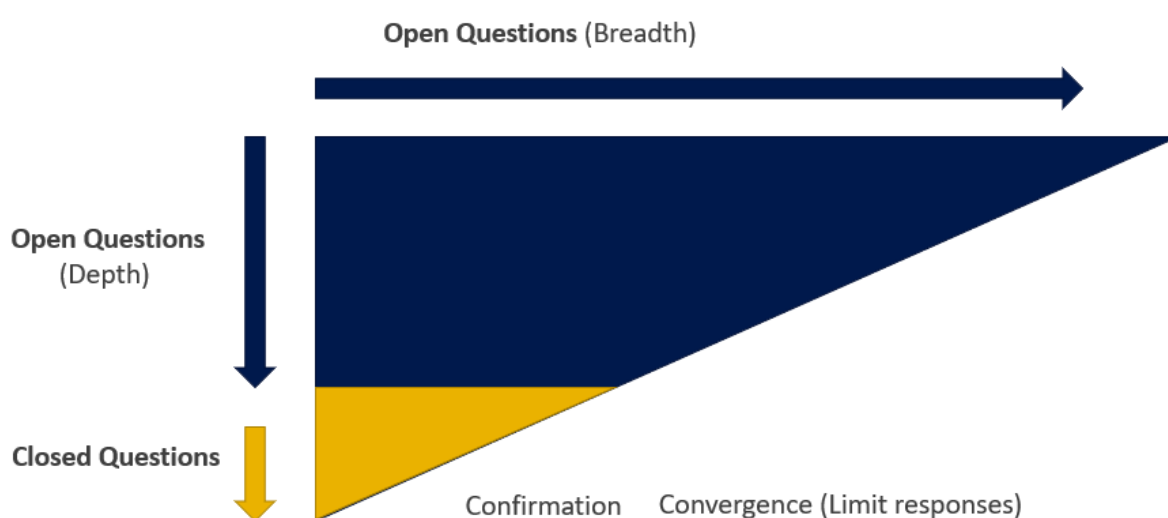
- Gather information
- Check understanding
- Identify needs
- Create interest
- Facilitate and guide conversations
- Assert control
- Project credibility

Questioning Techniques

Questioning can be broadly categorised into two types: questions open up a landscape of thought for exploration and those that narrow down to specifics for clarity and confirmation.

Questioning Technique	Description	Common Question Words	Additional Information
Open/Divergent	These questions do not have specific answers, encouraging broad thinking.	what, how, why, who, where, when, which	These questions often stimulate discussion, encourage creative thinking, and provide

Questioning Technique	Description	Common Question Words	Additional Information
		tell me, explain, describe, detail, expand	insight into the respondent's perspective or understanding.
Closed/Convergent	These questions typically lead to specific, often one-word answers, and tend to close the subject.	was, were, did, are, is, do, does, have	These questions can clarify facts, confirm understanding, and are quick to answer, making them useful for assessments or when time is limited.



Chunking (Moving between different levels of abstraction)

The concept of "chunking up" and "chunking down" is associated with Neuro-Linguistic Programming, an approach to communication and psychotherapy created in the 1970s by Richard Bandler and John Grinder. "Chunking up" and "chunking down" describe ways of navigating through different levels of abstraction to either broaden or narrow one's thinking and communication. "Chunking up" means moving to more abstract, general, or big-picture thinking, while "chunking down" means getting more specific and detailed. "Chunking Across" or horizontally refers to the process of exploring ideas or concepts at the same level of abstraction, but across different domains or contexts. This lateral movement can help students to identify similarities, differences, and connections that might not be immediately apparent, enhancing their analytical and comparative skills.

In improvisation, the ability to navigate between abstract and concrete thinking trains students to adapt quickly to new information, shift contexts, and connect disparate ideas creatively. For design thinking, abstract thinking is fundamental in the empathy and ideation phases, where one must conceptualise broad user needs and generate innovative solutions. Conversely, students focus on concrete details at lower levels of abstraction, which are crucial

for the implementation and testing phases. They learn to break down complex ideas into actionable steps and scrutinise how a product or solution functions in real-world scenarios.

Chunking Technique	Level of Abstraction	Purpose	Examples of Questions	Additional Information
Chunking Up	Abstract, Vague, Conceptual, Sameness	To explore the broader context, general principles, or overarching themes of a student's idea.	"What is an example of...?" "For what purpose is...?" "What is...a part of?" "What does...mean?" "What does...do for you?" "What is the intention of...?" "What is...trying to achieve here?"	This technique helps expand the conversation and connect the student's idea to larger concepts or goals.
Chunking Down	Specific, Concrete, Detailed	To delve into specifics and gather more granular information about a student's idea.	"What specifically...?" "What are examples of...?" "Give me more details about..." "What is the root cause of...?" "How did you do that?"	Use of Who, What, When, Where... This approach encourages students to think more critically and provide finer details or evidence supporting their ideas.
Chunking Across	Comparative, Lateral, Analogous	To draw parallels, make comparisons, or find connections between different concepts or ideas at the same level of abstraction.	"What's another example of this?" "Anything Else?" "So What Else is like that?"	This technique fosters analogical thinking, helping students transfer understanding from one domain to another and recognise patterns or relationships across different areas.

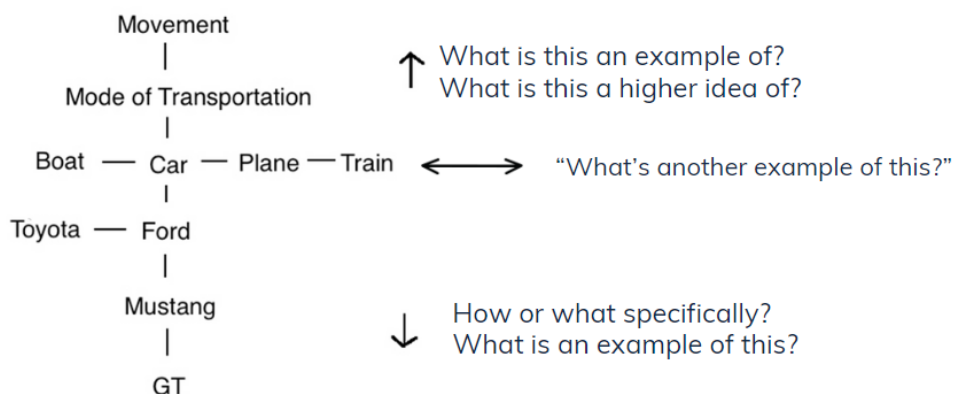


Diagram: Linking abstraction of ideas to chunking questions

Activity: Jeopardy Chunking

This interactive exercise help students practice asking questions to move across different levels of abstraction.

Instructions
<ol style="list-style-type: none">1. Students pair up, with one student taking on the role of Student A and the other as Student B.2. Student A receives a list of words or phrases that represent different ideas or concepts (do not show to Student B).3. Student A reveals the first word/ phrase to Student B.4. Student A asks chunking up, chunking down, or chunking across questions that move Student B to respond with the works or phrases on the list.
Example
<p>Topic: Living with Stem Cells</p> <p>List of Words: Stem Cells, Pluripotency, Bioethics, Regenerative Medicine, Gene Editing Techniques, Somatic Cell, CRISPR, TALENs (Transcription Activator-Like Effector Nucleases), Legislation</p> <ul style="list-style-type: none">• From Stem Cells to Pluripotency (Chunking Down): What is the capability called that allows stem cells to differentiate into various cell types?• From Pluripotency to Bioethics (Chunking Up): What field examines the moral and ethical considerations When considering the implications of cells that can become any tissue,?• From Bioethics to Regenerative Medicine (Chunking Down): What area of healthcare applies ethical principles to the repair or replacement of damaged cells, tissues, and organs?• From Regenerative Medicine to Gene Editing Techniques (Chunking Down): What are the specific methods called that are used within regenerative medicine to alter the genetic structure of cells?• From Gene Editing Techniques to Somatic Cell (Chunking Down): What type of cell is typically targeted by these techniques, which does not contribute to the genetic makeup of offspring?• From Somatic Cell to CRISPR (Chunking Down): What groundbreaking technology utilises a system found in bacteria to edit the genome of somatic cells?• From CRISPR to TALENs (Chunking Across): "What another example of gene editing techniques similar to CRISPR?"• From CRISPR/TALENs to Legislation (Chunking Up): "What does the potential misuse of CRISPR or TALENs mean for the responsibility of governments?"

Divergent Questions/ Statements

Moving across abstraction levels often implies a linear approach, yet ideation can also be non-linear and tangential, not restricted by sequential thinking. Here are some divergent questions and statements that can prompt expansive thinking, leap across abstraction levels, make

unexpected connections, and consider a range of scenarios and possibilities that can lead to innovative ideas:

Divergent Statement	Example	Explanation
Imagine	Imagine a world where cars are obsolete.	Encourages students to think beyond the present and existing situation, contemplating future possibilities.
Suppose	Suppose you had unlimited resources. What would you change in our city?	Invites students to consider scenarios outside of current limitations, fostering creative problem-solving.
Predict	Predict the impact of AI on our workforce in the next decade.	Asks students to analyse current trends and project them into the future, which can lead to insightful discussions on potential outcomes.
(What) if/then	What if we could photosynthesise like plants, then how would that change our food industry?	Poses a conditional situation that prompts students to explore cause and effect relationships.
How might	How might we apply the principles of nature to urban design?	Prompts students to draw connections between disparate concepts, encouraging innovative thinking.
Hypothetically	Hypothetically, if we discover an Earth-like planet, what should be our first step?	Challenges students to formulate plans or responses to theoretical situations, often leading to complex thought experiments.

Questions to avoid

Long questions	Long-winded questions can be confusing and difficult to follow. They often contain multiple layers or ideas, which can dilute the main point of the question. This can make it hard for the students to grasp what is being asked and to provide a concise, relevant answer.
Asking multiple questions	When you ask several questions at once, it can overwhelm students, and they might not remember all parts of the question. As a result, they may only answer one part, leaving the rest unaddressed. It's generally more effective to ask one question at a time and wait for a response before moving on to the next.
Statement after a question	Adding a statement after a question can lead to confusion about what you are seeking. Students might be unsure whether to respond to the question, react to the statement, or address both.

	This can dilute the focus of the conversation and make the interaction less efficient.
Statement instead of questions	If you make a statement when you intend to ask a question, you risk not receiving any answers from students because it wasn't clear that you were looking for a response. Questions should be phrased clearly to ensure they elicit the information or feedback you seek.
Do you understand? Is that clear?	While these questions can be useful in checking for comprehension, students may want to avoid embarrassment or appearing incompetent and respond with "yes" as default. It's often better to ask more open-ended questions like, "What questions do you have?" or "Is there anything you'd like me to clarify?" to invite dialogue without making assumptions about the student's level of understanding.

Posing questions that lack a clear avenue for response or fail to lead to meaningful follow-up can hinder the learning process. Aim to craft questions that stimulate thought and guide students towards deeper engagement and understanding.

Activity: Celebrity Heads with GenAI Bots

Generative AI's natural language conversational attributes can be a remarkable asset in honing your students' questioning skills. For example, teachers can create AI-driven bots that students can interact with to practice asking questions. This can be applied to the classic game of Celebrity Heads, where the bot is programmed to stimulate personas of entities or abstractions related to a course, providing clues and responding to students' questions in real time.

Setup
<ul style="list-style-type: none"> • Customise a bot via a GenAI application (One platform teachers may want to use is Poe.com, a Large Language Model aggregator). • Add prompts to instruct the bot to roleplay people/ characters, facts, theories/ concepts, models, historical periods etc. • Make sure the prompts include instructions to make the exercise challenging, for example "
Instructions
<ol style="list-style-type: none"> 1. Provide students with access to the GenAI bot and have them practice asking questions to guess the role the bot is playing. 2. Afterwards, have students build their own bots and prompts related to the course and test this with their peers.

Conversational Teaching

With the expectation that universities develop students' communication skills, conversational or dialogic teaching emerges as a cornerstone of effective pedagogy. At its heart, this approach is grounded in the art of dialogue, fostering a two-way exchange of ideas between teacher and students. By embracing a conversational style in your teaching, you can cultivate a classroom climate that encourages students to articulate their thoughts and questions and reduces the power distance. Students hone their critical thinking and active listening skills by engaging in meaningful dialogue while cultivating an empathetic ability to appreciate many

perspectives. Such skills are essential for adeptly manoeuvring through the multifaceted world outside the academic realm. Adopting a conversational style makes the learning more authentic. It invites teachers and learners to weave their unique backgrounds and experiences into the learning experience.

Listening and observation

As a teacher, placing your attention outwards on the students is a transformative practice that shifts the focus from teaching to learning. This approach prioritises listening and observation, key components that allow educators to tune in to the nuanced dynamics of the classroom. By actively listening, teachers hear not just the words of their students but also the underlying messages conveyed through tone, pace, and hesitation, which can reveal confusion, curiosity, or comprehension. Simultaneously, keen observation of body language, engagement levels, and group interactions provides real-time feedback on the lesson's effectiveness and the classroom's emotional climate. This outward focus empowers teachers to adjust their strategies to meet the student's needs as they emerge, fostering a learner-centred environment where each student feels seen and heard and where teaching is responsive, adaptive, and truly supportive of the learning journey.

Activity: Counting to 10 and back

This activity aims to sharpen students' listening and observational skills in a group setting. By engaging in a collective task that requires careful attention and non-verbal communication, participants will enhance their ability to tune in to the actions and cues of others. The activity cultivates a spirit of shared involvement, training groups to collaboratively navigate towards a common objective.

Instructions
<ol style="list-style-type: none">1. Arrange students into a circle, either sitting or standing.2. Explain that the group's challenge is to count aloud from 1 to 10 and then back down to 1, with only one person saying a number at a time.3. If two people speak simultaneously, the group must start over.4. The game can begin with anyone saying "1" <p>Rules:</p> <ul style="list-style-type: none">• No signals or signs are allowed. This includes no eye contact to cue the next person to speak.• The order in which students speak must not be predetermined nor follow any pattern.• The same person cannot say two consecutive numbers.• To increase difficulty, introduce a clap to replace certain numbers to the group's focus and adaptability.

Purposefully Ambiguous

Utilising purposefully vague and ambiguous language can be a powerful tool in facilitating a more inclusive and participative environment. Phrases like "Perhaps you've considered" or "Maybe there's another perspective" invite open-ended responses, encouraging students to fill in the blanks with their own insights and ideas. Statements such as "Sometimes we find" or "It's probably worth examining" suggest a non-authoritative stance, positioning the facilitator

as a co-learner rather than an expert. This can lower barriers to participation, as it subtly communicates that there are multiple valid interpretations or solutions. By implying, "This is likely an important point" or "Generally speaking, we might see," the facilitator creates a broad framework within which participants feel safe to share diverse thoughts, knowing there is room for their unique contributions within the collective exploration of a topic.

Perhaps
Maybe
Sometimes
Probably
Likely
Generally

Activity: Mixtapes

The activity about the dialogue it sparks and the insights it brings to students through a musical approach of connecting with the course content. Teachers should emphasise the value of collaboration, shared discovery, and the associational but ambiguous nature of the exercise (as there is no right or wrong answer).

Instructions

1. Divide the class into small groups.
2. Assign a theme to each group related to the course content.
3. Each student in the group selects one or two songs from songs they know best represent the theme. They should be prepared to explain their choice, including how the song relates to the theme and why it's a significant addition to the "mixtape."
4. Once all group members have selected, they should compile the list into a "mixtape." If time and resources permit, this can be done on paper, a shared digital document, or by creating an actual playlist using a music streaming service.
5. Each group presents their "mixtape" to the class. During the presentation, students should share their song choices, play snippets, and explain the rationale behind each selection.

Responding to Students

Sometimes, students may respond in ways we are not expecting or ask unprepared questions. Teachers need to just "go with it" and continue the conversation instead of blocking the flow of thought. Moreover, the language used by a teacher can significantly affect a student's willingness to participate and take risks in their learning. When students respond to questions, avoiding labels like "wrong" or "incorrect" can help maintain an open and encouraging atmosphere. Instead of dismissing an answer outright, it's essential to consider what the student's response is attempting to convey. Perhaps it reveals a unique perspective or a misunderstanding that can lead to deeper exploration. By responding with further questions, teachers can guide students to reflect on their thinking process and arrive at the correct answer collaboratively. This approach fosters a growth mindset, where mistakes are seen as opportunities for learning rather than failures. It builds confidence, encourages continuous engagement, and cultivates a classroom environment where all contributions are valued as steps in the collective journey of understanding.

Audiovisual feedback

Leveraging voice or video recordings for feedback infuses a sense of social presence and authenticity into the evaluative process that can be absent in written communication. It establishes an emotional connection, as students can hear the encouragement and support in their instructor's voice, which can be incredibly motivating. This method is not only efficient, allowing for quicker conveyance of nuances and emphasis, but it is also highly accessible. Given today's digital landscape, audiovisual feedback resonates as a natural medium for students accustomed to processing information in this way. Moreover, when aligned with specific assessment criteria, such recordings can provide targeted insights, helping students understand and apply the feedback effectively to enhance their performance in subsequent assignments.

If you are uncomfortable recording yourself, generative artificial intelligence platforms like ElevenLabs, Synthesia, and HeyGen offer cutting-edge AI technology that can simplify the creation of personalised audio and video messages. With these tools, teachers can generate natural-sounding voiceovers or even create real-life avatars to deliver feedback. These AI solutions can transcribe spoken input into text and vice versa, ensuring accessibility for all students. They also provide options for different voices and languages, making feedback more inclusive. The ease of use and the ability to produce content on the fly make such generative AI tools an invaluable asset for educators looking to maintain a high level of engagement with students through rich, interactive feedback that is both authentic and easily distributable across diverse learning platforms.

Difficult situations or conversations

Sometimes, you will encounter classroom situations where conflict arises, and there is a need to deliver difficult feedback. Conflict may arise because of differences in expectations or perceptions, emotions being high, or consequences being at stake.

Navigating challenging conversations with students requires a thoughtful, structured approach that fosters understanding and promotes positive behaviour change. The following table outlines potential techniques and strategies for effectively handling challenging situations in the classroom:

Here are some tips to potentially work through difficult conversations:

Strategy	Description	Example
Self-reflection on Internal Narrative	Before addressing the student, reflect on your own interpretation of their behaviour to avoid bias.	Ask yourself, "What is the story I am telling myself about this student's behaviour?"
Expressing Impressions	Share your perspective on the situation using neutral language to avoid accusatory tones.	"The impression is that you might not be interested in the class when you use your phone."
Use "I Feel" Statements	Communicate your feelings and the impact of the student's	"I feel concerned when you use your phone during lectures

Strategy	Description	Example
	behavior without assigning personal blame.	because it distracts others and impacts their learning experience."
Behaviour Labeling	Focus on the student's behaviour, not their character, to address the issue without personal criticism.	Label the behaviour, not the person: "Using the phone in class can be distracting," instead of calling the student disrespectful.
Acknowledge the Positive	Recognise any positive aspects or good intentions behind the student's actions to maintain a constructive tone.	"I've noticed you contribute well when we discuss topics you're passionate about, and that's commendable."
Offer Points for Consideration	Suggest ideas for the student to reflect upon that might improve their behavior or engagement.	"A point to consider is how participating more actively could benefit your learning process."
Share Personal Discoveries	Offer insights from your own experience that the student might find useful.	"I discovered that taking notes helps maintain my focus—you may find this helpful too."
Take Conversations Offline	For more sensitive issues, arrange a private meeting to discuss the matter without embarrassment or public scrutiny.	"Let's set a time to talk after class to discuss this further," indicating a willingness to 'park' the issue for a later, private conversation.

5. Experimenting and Failing

Students coming into a premier institution such as HKU are often accustomed to a track record of academic excellence, meaning they probably are not used to frequently encountering failure. Secondary education in the Asian context with high-stakes summative assessments often emphasises controlled textual response, genre familiarity, and the drilling of past practice papers. Experimentation seems like an unnecessary risk. Furthermore, parental expectations around education influence students' associations of failure and its avoidance. There's a story of a student excitedly telling their mum they had received an A-minus for a course at university; the mother quips, "We're Asians, not A minus-sians!" Yet, when students are shielded from failure, they are inadvertently deprived of a crucial growth catalyst, potentially impacting their future resilience and mental well-being. Experiencing and navigating failure is imperative; it teaches adaptability, strengthens problem-solving skills, and fosters emotional resilience.

Experimental Spaces

Teachers can use improvisation and design thinking tenets to foster a classroom environment rooted in trust and clear boundaries that allow experimentation. The creation of a safety zone reduces the perceived risk associated with failure. It paves the way for a more resilient and supportive learning culture, where judgment is suspended and every attempt—successful or not—is valued as a critical learning opportunity. This paradigm nurtures a space where ideas can flourish, and educational exploration is celebrated.

“If you hit a wrong note, it’s the next note that you play that determines if it’s good or bad.” – Miles Davis

Success can often obscure the rich learning found in failure. By setting the expectation that failure is a natural and necessary part of the learning process, we can encourage students to take risks and learn from their experiences, continually improving and building resilience.

Activity: Pasta and Orange

In this tactile exercise, students will be tasked with inserting strands of uncooked spaghetti into an orange in darkness. By working in the dark, students will use trial and error without the benefit of visual feedback. It highlights the inevitability of failure; not every attempt will be successful, and some spaghetti will inevitably break. However, through these failures, students learn resilience, adaptability, and the importance of iterating on their strategies.

Setup/ Materials Needed
<ul style="list-style-type: none">• One orange for each group• A box of uncooked spaghetti pasta
Instructions
<ol style="list-style-type: none">1. Organise the class into pairs or small groups.2. Provide each group with one orange and 20 pieces of spaghetti.3. Communicate that the goal is for students must insert as many pieces of spaghetti into the orange as possible without breaking the pasta in 1-minute.4. Turn off the light and start the activity. <p>Stop the activity and turn the light on.</p>

Activity: Explain your Tattoo

This exercise embodies the essence of improvisation and creativity by asking students to react spontaneously and inventively to the random images of tattoos they are assigned. Each student must think on their feet and then quickly generate a narrative or explanation connecting the tattoo to a made-up personal story. It introduces the concept of “safe failure”—an environment where the consequences of a mistake are not punitive but rather seen as a learning opportunity.

Setup

- Prepare random images/ pictures of tattoos.

Instructions

1. Each student is assigned a random tattoo.
2. Students must explain why they got this tattoo and later regretted it.

Failure or circus bow

Consider the "circus bow"—a practice adopted in improvisation, following up a mistake with a flourish and an intentional bow. This tradition transforms a moment of failure into an opportunity for grace and audience connection.

By encouraging students to take their own 'circus bows,' we normalise the idea that not every attempt will be flawless, but each can be a step toward mastery. As teachers, our role is to applaud the effort and resilience in the face of setbacks, nurturing a classroom ethos where setbacks are not seen as defeats but as integral parts of the learning process.

You're awesome

Integrating the affirmative shout of "You're awesome!" into the classroom environment can be a powerful tool for building a positive learning atmosphere. This simple yet impactful practice fosters a supportive community and reinforces the improvisational principle of celebrating contributions, big or small. It encourages students to take risks and share ideas without fear of judgment, knowing their peers and instructor will enthusiastically acknowledge their efforts. By vocalising this positive reinforcement, you help cultivate an inclusive classroom culture that champions each student's unique input, bolsters confidence and strengthens the collaborative spirit essential for improvisation and design thinking processes.

Matching challenge to skills

As you design your classroom activities, aim to strike a delicate balance that nudges students into the 'flow state'—a zone of optimal engagement where skills are sufficiently challenged without inducing overwhelm. As discussed previously, a moderate level of arousal—a bit of stress—can enhance performance and learning. Students like to be challenged.

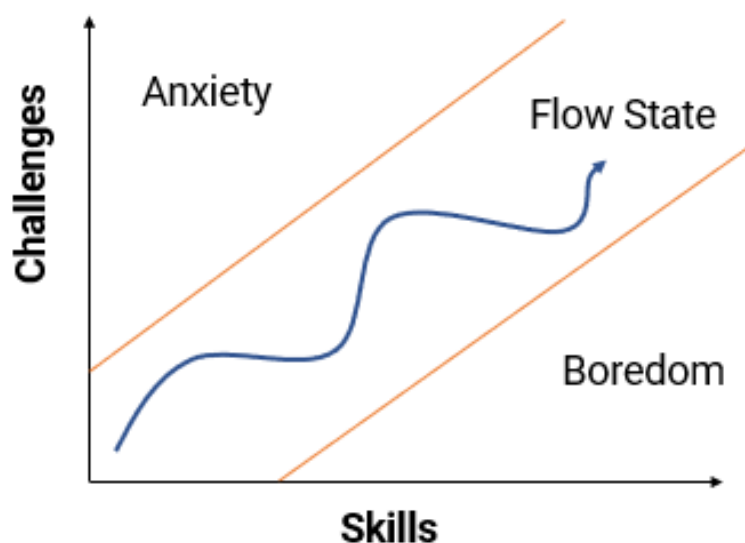


Diagram: Flow State (Csikszentmihalyi, 1990)

Too little stress and students may become disinterested or complacent; too much, and they may buckle under pressure. By judiciously calibrating the difficulty of tasks or providing students with the appropriate competencies or knowledge, teachers can allow students to achieve peak performance and derive a profound sense of accomplishment from completing a challenging task or problem. This is the sweet spot where learning is not just effective but also profoundly satisfying.

Intentional Failure

When crafting your classroom activities, consider intentionally incorporating elements that are designed to lead to failure. This strategy is not to discourage but to create teachable moments that we can collectively reflect upon and learn from. However, be mindful of the duration and frequency of such activities. If drawn out for too long, students may shift from being constructively challenged to feeling demoralised and frustrated. The aim is to expose students to failure and use this as a launch pad for discussion and iteration, not a source of ongoing stress or disillusionment.

Here are ways to build failure into your activities and potential post-activity learnings:

Techniques	Rationale and Learnings
Time constraints	Implement time-bound tasks where the constraint of time is likely to result in incomplete or imperfect solutions, prompting discussion on prioritisation, planning, and collaboration.
Incremental complexity	Design tasks that start simple and gradually increase in complexity. This progression ensures that students will eventually encounter a point of challenge that may lead to failure, prompting them to rethink and refine their strategies.

Techniques	Rationale and Learnings
Unfamiliar roles	Assign students to take on roles they're unfamiliar with, such as leading a discussion or teaching a concept. The discomfort and potential for failure in these situations can be powerful learning experiences.
Tech and Tool Exploration	Introduce new technologies or tools without instruction and allow students to explore their functionalities.
Blind collaboration	Have students work in pairs or groups where one member has information the others do not, potentially leading to miscommunication and failure. This can lead to discussions about the importance of clear communication and teamwork.
Competitive Elements	Introduce friendly competitions where not everyone can win. This sets up a natural scenario for failure and can be used to foster discussions about effort, strategy, and improvement.
Ambiguous instructions	Give assignments with deliberately vague or open-ended instructions to challenge students' interpretation skills. This can lead to a variety of outcomes, including failure, which in turn prompts critical thinking and adaptability.
Resource limitations	Provide students with a limited set of resources to solve a problem. Scarcity can lead to creative solutions, but it can also result in failure, which becomes a discussion point for resourcefulness and innovation.

Activity: Spaghetti Tower Marshmallow Challenge

The activity evaluates teamwork, communication, and creative problem-solving. The limited resources, the short time limit, and the need for teamwork leads to potential setbacks and failures and serves invaluable lessons in resilience and iterative design. After the first attempt, teachers should debrief with students to reflect on their approaches, understand their failures, and plan for improvements.

Setup/ Materials Required
<p>Provide each team with the following:</p> <ul style="list-style-type: none"> • 20 sticks of uncooked spaghetti • 1 meter of tape • 1 meter of string • 1 standard-size marshmallow
Instructions
<ol style="list-style-type: none"> 1. Construct the tallest freestanding* structure to support a marshmallow on top. 2. Time Limit: 5 - 10 minutes 3. measure the height of structures from base to marshmallow top

* Freestanding means the structure must stand on its own without any external support or assistance. It cannot be held up, propped, or stabilised by a person, wall, or any object (eg. affixed to the table with tape). The structure must maintain its stability solely through its design and construction and bear the weight of the marshmallow at the top.

Activity: I've got a gift

The activity embodies the essence of experimentation where ideas are not shutdown and there's no outright failure. During the activity, each spontaneous "gift" represents a mini-experiment in creativity that has no predetermined response. This means that there's no "wrong" gift, but rather an opportunity to explore how an idea is received and built upon. In the process of exchanging gifts, students inevitably face moments where their ideas might not spark immediate enthusiasm or the building process stalls. These instances are micro-failures in the flow of creativity and collaboration. However, rather than discouraging the participants, the activity is designed to teach resilience. Each interaction is a chance to learn from the less successful ideas and to quickly rebound with new ones. This iterative exchange promotes a "Yes, and..." mindset, crucial for collaborative ideation.

Instructions

1. Have each pair face each other.
2. If the group is large, consider having multiple rounds or a circle formation where the activity moves around the circle.
3. One person in the pair begins by miming handing over a gift to their partner.
4. The giver must also verbally announce the gift. For example: "I've got a gift for you; it's a magic wand!"
5. The receiver accepts the gift, enthusiastically responds and builds upon the idea presented. For example: "Thank you! Now I can turn my homework into pizza!"
6. After the receiver responds, they become the giver and develop a new imaginary gift to hand back.
7. Encourage students to be as imaginative and detailed as possible.

Variation to steps 3 – 5 (Receiver declares the gift)

3. The giver acts out the gift's weight, texture, and shape and gives a gift to the receiver.
4. The receiver accepts and opens the gift and enthusiastically describes something consistent with the properties of the gift, for example: "Wow, thank you. A USB speaker! I always wanted that. Thank you."
5. The giver will then comment on why they thought it was a perfect gift for the receiver.

6. Empowered Participation

Inclusive participation is the cornerstone of a dynamic educational experience where diverse perspectives are acknowledged and celebrated. By creating a space where every student feels confident and encouraged to contribute, we lay the groundwork for a richly participative and profoundly engaging learning journey. It is within this inclusive setting that students can truly flourish, developing the confidence to share their unique insights and the resilience to listen and adapt to the ideas of others.

Of course, achieving this ideal can be fraught with challenges. In practice, teachers need to navigate a tapestry of individual personalities, cultural backgrounds, and circumstances. Some students may naturally be more reticent or face language barriers, while others might dominate discussions, inadvertently creating an imbalance in the classroom dynamic. Moreover, ingrained social dynamics or previous educational experiences can influence students' willingness to engage. Therefore, teachers are not only facilitators of knowledge but also architects of equitable participation. This involves crafting strategies to draw out quieter voices and temper more dominant ones, ensuring the classroom becomes a level playing field.

Activity: Count Your Words

This structured communication activity is designed to democratise participation. By assigning a specific number of words to each student, you inherently create a level playing field where the typical dynamics of classroom participation are disrupted. Students who are naturally more reserved are given a clear framework to express their thoughts, which can be less intimidating than open-ended participation. Conversely, students who tend to dominate discussions are encouraged to be more concise and considerate about the space they occupy in the conversation.

Instructions
<ol style="list-style-type: none">1. Students are assigned a number.2. For the duration of the activity, the student can only say the number of words corresponding to the assigned number.3. A student can only speak when at least two other participants have spoken.

Assigning Responsibilities

Assigning responsibilities to students in the classroom, particularly during problem-solving or ideation exercises, can significantly enhance engagement and foster a sense of ownership over the learning process. When students are entrusted with specific roles, it empowers them to take initiative and ensures that participation is distributed more evenly.

Role	Description	When?
Idea Generator	Students who initiate and contribute inventive and diverse concepts during brainstorming sessions.	Face-to-Face/ Online
Scribe/ Notetaker	Students tasked with documenting the flow of ideas during brainstorming activities to ensure no contribution is lost.	Face-to-Face/ Online

Role	Description	When?
Leader and Timekeeper	Students who manage the overall coordination and timing of a group activity.	Face-to-Face/ Online
Presenter/ Rapporteur	Students who communicate the key discussion, decisions, and results of group work to the larger class.	Face-to-Face/ Online
Reflection Leaders	Students who facilitate a brief recap at the end of the session, summarising what was learned and asking for feedback.	Face-to-Face/ Online
Provocateur	Students who challenge ideas constructively to provoke deeper critical thinking and discussion.	Face-to-Face/ Online
Breakers	Students who are ready to fill audio silence with prompts or follow-up questions when open-ended questions are met with quiet.	Face-to-Face/ Online
Engagement Champions	Students who monitor participation levels and encourage quieter classmates to contribute.	Face-to-Face/ Online
Tech Navigators	Students adept with the digital platform who assist others with technical issues or questions about using the online tools.	Face-to-Face/ Online
Chat Provocateurs	Students that invigorate the chat by posing relevant questions.	Online
Catchers	Students who take on the responsibility of messaging key points to classmates who may have missed parts of the class due to technical issues.	Online
Teacher Talk Timekeeper	Students who discreetly remind teachers via chat to keep their monologues under five minutes to maintain a participatory session.	Online
Sweepers	Students who distribute the session's Zoom recording, chat transcripts, or class notes after the session.	Online

By rotating the roles throughout the same or different activities, students learn to adapt to various positions of responsibility, gaining a well-rounded skill set that includes leadership, time management, and active listening. Additionally, this rotation prevents the consolidation of power dynamics within the group and allows each student to experience being in a position of influence and accountability.

Activity: All Those That...

The exercise is a great icebreaker that helps students recognise commonalities and differences within the group in a non-threatening and often fun way. It can be a powerful tool for building rapport, sparking discussions, and creating an inclusive learning environment where every student feels valued and seen. Students can speak by calling out statements and sharing a little about themselves.

Instructions

1. Have your students stand in a circle or in an open area where they can easily move.
2. One student (or teacher) calls out a statement that may apply to some individuals in the group. For example, you might say, "All those who have travelled to another country," or "All those who speak more than one language."
3. Students for whom the statement is true will step into the circle or toward the centre of the group.
4. (Optional) Students who step forward can briefly share their experiences related to the statement. This sharing can deepen the group's understanding and appreciation of diverse backgrounds and experiences.
5. After each round, students step back to their original positions, and another student (or teacher) calls out a new statement, continuing the process.

Activity: Stuck Truck

In this interactive activity, students are grouped and assigned distinct roles to tackle a problem-solving scenario collaboratively. This structure ensures shared participation by empowering each student to contribute according to their role, inviting diverse ideas and critical thinking and practicing teamwork.

Instructions

6. Group students and assign different roles: Ideas Generator, Provocateur, Scribe/ Notetaker, Leader/ Timekeeper, Rapporteur (depending on number of students in groups).
7. Communicate the problem to the students: "A truck is stuck under a bridge and the driver cannot get it out. A passerby stops to help and easily gets the truck unstuck. How did the passerby do it?"
8. Students have 5 - 10 minutes to discuss possible solutions and report back.

Solutions

1. Let out air from the tires: The passerby could suggest deflating the tires slightly to lower the truck's height, allowing it to pass under the bridge.
2. Adjust the truck's load: If the truck is carrying a load, rearranging or removing some of it might help to reduce the overall height or weight, making it easier to maneuver.
3. Change the tire pressure on the opposite side: By changing the tire pressure on one side of the truck, it could create an angled effect, potentially providing enough clearance to get unstuck.
4. Use a different angle: The passerby might guide the driver to approach the bridge at a different angle that could provide more clearance.
5. Partial disassembly: If the truck has any components that are temporarily adding height (like exhaust stacks or signage), the passerby might assist in temporarily removing or lowering them.

6. Lubrication of the path: Applying a substance that reduces friction (like soap) to the road could help the truck slide through without causing damage.

Activity: Crash Landed

This exercise provides students with practical experience in delegating and assigning responsibilities among the group, which is crucial for effective team collaboration. Given there are no correct answers, the activity offers a fun way for students to observe their peers' perspectives and build consensus towards a shared solution.

Instructions

1. Divide students into different groups.
2. Present the problem: "Your aircraft crashes and your group is stranded in a mountain forest in appalling winter weather somewhere in Nepal. You are probably 100 or more kilometers from the nearest village or town. You have no other items except the casual clothes you are wearing. The plane is about to burst into flames and you have only a few moments to grab some items. Discuss with your group the six (6) items you would bring to ensure your survival until you are rescued." (The number of items allowed can be varied)
3. Present a list of items to the students.
4. Let students decide roles are required here to manage the decision-making process.
5. Afterwards, students have 10 – 15 minutes to discuss the items they would select and the reasons why.

Example of List of Items

(Teachers are free to vary the items)

- | | |
|--|---|
| <ul style="list-style-type: none"> • 1 bottle of whiskey • 1 crate of bottled spring water (twelve litres in total) • Small toolbox containing hammer, screwdriver set, adjustable wrench, hacksaw, large pen-knife • Box of distress signal flares • Small basic first-aid kit containing plasters, bandages, antiseptic ointment, small pair of scissors and pain-killer tablets • Mobile phone with infrared port and battery half-charged • Clockwork transistor radio • Box of 36 x 50 gm protein bars • A shovel • Short hand-held axe • Handgun with magazine of 20 rounds • 30m of 30 kg nylon rope • Box of 24 x 20gm bags of peanuts • Box of 24 rolls of tissue paper | <ul style="list-style-type: none"> • Laptop computer with infrared port, modem, unknown software and data, and unknown battery life • Inflatable 6-person life-raft • Compass • Large full aerosol can of insect repellent spray • Small half-full aerosol can of air freshener spray • Notebook and pencil • Travelling games compendium containing chess, playing cards • Sewing kit • A guitar • A Chihuahua (dog) • Torch with a set of spare batteries • Box of 25 night-light 3hr candles • Bag of 6 large blankets • Pack of 6 boxes x 50 matches • Roll of polythene sheeting 3m x 2m • A whistle • A pair of binoculars • A Nepalese-to-Chinese dictionary |
|--|---|

Disaster Response Plan with Generative AI

Taking advantage of the probabilistic nature of LLMs, teachers can construct complex scenarios by customising bots with precise and detailed prompts and have students interact with these scenarios. The exercise can help students think critically and creatively adapt their responses to the uncertain and dynamic consequences posed by the LLM.

The following is an example of an activity created for students to roleplay emergency management consultants for a city responsible for deploying emergency services after a major earthquake.

Instructions to Students:

Your team is the emergency management consultants for the city of Peninsula, which has recently experienced a major earthquake, causing significant damage and disruptions. Your team needs to decide on what actions to take in this situation. Due to resource constraints, you are permitted four new actions per turn. In addition to deploying essential services, you can deploy engineers to fix damaged facilities.

What roles do group members need to get into to form the plan? What actions will you take?

Map of the city with the emergency services locations and unfolding crisis zones.



Prompts for customising GenAI Bot (using GPT-4 LLM):

You will play the role of the Game Master.

The city of Peninsula has recently experienced a major earthquake and there is significant damage and disruptions across the city. The city is divided into 6 districts: Central Business District (centre), Southwest Residential District (southwest), North Hill Residential District (northwest), East Commercial and Residential District (east), East Industrial District (far east), and Wharf District (southwest adjacent to CBD).

Here's a list of disasters and emergency situations, with potential to escalate:

1. A wildfire has started in the chemical factory and is spreading in the industrial zone, with 30% chance of spreading to the petroleum processing plants nearby and then to the old growth forests.

2. Large-scale power outage due to damage of the substation has, plunged the Southwest Residential District into darkness and affecting essential services, including the hospital (on backup power and will lose all power after turn 2 if no intervention on substation), police station, and airport.
3. A train have derailed in East Commercial and Residential District, with injury and death to passengers onboard.
4. 30% potential for tsunami, impacting the Southwest District (hospital, police station, airport) and Wharf District (warehouses and docks - leading to supplies shortage).
5. Widespread looting in the shopping area, northern part of East Commercial and Residential District.
6. Structurally damaged high-rise residential building in north CBD with 50% chance of collapse.
7. Only highway in and out of the city is severely damaged. Extensive highway damage across the city, delaying logistics.
8. Potential damage to the dam and hydroelectric plant. If dam bursts (20% chance), will flood the East Commercial and Residential District and damage the hospital.
9. You may also invent a new emergency situation based on the information provided and the actions of the player.

For essential services, there are three hospitals (one in north hill, one in southwest, and one in east commercial residential district - can deploy ambulance), two fire stations (one in CBD, one in East industrial district), two police stations (one in southwest, one in east industrial). For essential services:

1. If sending them across districts, there is a 50% chance they will be delayed by one turn due to highway damage.
2. If essential services attend to a situation and the player does not issue further instructions, essential services will continue to do their work until the situation is resolved.
3. Essential services must be used appropriately. For example, if ambulance or police is sent to save residents from structurally damage high-rise, they will die. Fire services cannot deliver injured to the hospital - the injured will die. Also, essential services cannot repair infrastructure (only engineers can).
4. If essential services become inaccessible, player cannot deploy them.

Wait for player to input what they will do next. If the player does not address the unintended negative actions in the current turn, there is a high probability existing problem will escalate. There is a small chance events may resolve by themselves or not escalate - if so, please tell the player.

Based on the scenario parameters and the decisions of players (subsequent inputs) each turn, you will output the following:

1. Only tell the player the unfolding consequences of the players' action or in-action to the disaster/ emergency situations. For example, if the player did not address the looting problem, you can decide that the looting has spread to a neighboring area.
2. No need to tell the player about unresolved situations unless it escalates.
3. Ask the player what they will do next (wait for their next input). After 3 turns, give a final report to the player of their achievement and progress.

7. Final Words

As we draw this guidebook to a close, we hope teachers can take a moment to reflect on the journey we have embarked upon together. Teachers must remember that we are preparing students for exams and the complexities of the real world, where collaboration is crucial in thriving. How you teach and lead learning influences how students they should think, feel, and act.

Shared control turns the classroom into a collaborative space. Skilled listening allows you to tune into the diverse voices of your students and ask questions to instil thoughtful responses and enriching conversations. Resilience keeps you agile and responsive to the ever-changing experimentations required for continuous learning and innovation. And building on the ideas of others fosters a culture of innovation and mutual respect. These concepts are not just theoretical but practical tools that can invigorate your teaching and amplify student engagement. Embrace the unexpected, encourage participation, and create a learning space where ideas can flourish and students are equipped to navigate the challenges ahead.

As a teacher, you have the power to make an enduring impact. Carry these strategies into each class, and watch your students grow into thoughtful, adaptable, and proactive learners.

Here's to your continued success in the noble pursuit of teaching.

Let's make it extraordinary.

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