# Transcript for the ILOTA Things - Episode 5 - New Frontiers of Expression: Picture this

**Announcer:** Welcome to ILOTA Things, the ADCET podcast where we explore Inclusive Learning Opportunities through AI. In this series, we'll explore the exciting convergence of universal design for learning, UDL, artificial intelligence, AI, and accessibility, and examine ways in which we can utilise emerging technologies to enhance learning opportunities for educational designers, educators, and students. Now, here are your hosts, Darren, Elizabeth, and Joe.

**Darren:** Hello and welcome from whenever, wherever and however you are joining us and thank you for your time as we investigate ILOTA things, that is, Inclusive Learning Opportunities Through AI. My name is Darren Britten and joining me once again on our artificial intelligence, universal design and accessibility Ferris wheel are my co-hosts Joe Houghton,

**Joe:** Hi from Dublin

**Darren:** and Elizabeth Hitches.

**Elizabeth:** Hi there from Australia.

**Darren:** Today's episode is titled New Frontiers of Expression: Picture This, in which we're going to take a look at how current AI tools can help us create and manipulate visual imagery. Now, we acknowledge up front that there is a lot of controversy around AI image generation, the source material that's been used to train the various engines and the numerous ethical considerations, such as the potential for misuse and harm, and this is something that we will discuss in a future episode. But for today, we want to talk about the opportunities that AI image generation can have in enhancing teaching and learning for both teachers and students. So a great place to start this discussion would be with Joe, who can hopefully give us an overview of where we are currently with the AI tools and what can we use to create imagery?

**Joe:** Generative AI in terms of creating images has come on in huge leaps and bounds over the last 18 months. When ChatGPT first came out, it was very rudimentary what could be done with imagery for the tools that we all have available to us. And, you know, we've probably heard of tools like Midjourney and DALL-E. But over the last year or so, the computing power, the algorithms, have improved significantly of free, accessible tools that any educator or student can use to illustrate their writing, to create images for web pages, for video, for whatever and it's not just images either, and we'll probably do a session sometime later in the series on video, because the stuff that's coming out for video is incredible as well. But we're we're focusing on kind of still images today. Canva is a tool that a lot of um, the educators around the world are using. There's 140 million Canva users now and you know fantastic Australian success story, uh, Melanie Perkins. So well worth having a look at Canva and if you have the AI kind of bits enabled in your Canva subscription, Canva has an AI generator so you can type in a short phrase or whatever, a prompt and it will give you an image and then you can change those images and edit them and, you know, say I don't like this, put a yellow hat on her or whatever it is, and and things will change. Um it's, it's relatively rudimentary compared to some of the big boys.

One that I've used quite a lot and I quite like, because if even on the free plan, you get kind of the ability to create four or five images a day, is Leonardo.ai, so that's maybe one that you haven't come across, and links will be in the show notes for all of these things. But Leonardo will create photorealistic images or images in any art form that you like. When you go into Leonardo, you're presented with this scrolling page of other images that other people have created and you can see what they've created and when you click on the image you can also see the prompt that they used to create that. So that's a really good way of kind of leveling up, you know, when you're not really good at doing this stuff.

Adobe has Adobe Firefly, um similar thing, and Adobe has kind of told us that the image creation engine has been trained kind of more ethically than perhaps some of the other tools. So they've only used licensed images they haven't of, you know, gone for people's images that they aren't allowed to use and stuff like that. And now there is a digital watermark as well. So we're seeing a lot of tools coming in that can create, in some cases, completely photorealistic imagery that you couldn't differentiate from a photograph. Imagery that you couldn't differentiate from a photograph. I'm not sure what, from a kind of an ethical point of view and an accessibility point of view, that brings up. Maybe Elizabeth can throw some light on that.

**Elizabeth:** Thanks, Joe. It's a really fascinating age to be in, I think, and you know, you think all the ways that we used to generate images and you know whether that was by hand or whether that was with different software, but now this is taking it into a whole different space. It's opening up a whole different way that we can actually create. So I think if we think about that specifically, that image creation, there are two different perspectives that we can look at this from. So we have that educator or resource creator perspective and using images to really represent information, and so we can think about this aligning with that UDL principle of representation, so using images to represent information. Then we have that student perspective and students might actually be creating images as a way to express their understanding and to really show us what they know. So that would be aligning more with that action and expression principle.

But if I start with that educator perspective, there are times when we might have a really complex concept or maybe a really novel idea and it can be beneficial to communicate that in a visual way in some way, but it might actually be something that's really complex to draw. So I'm thinking back to when I was drawing geometric shapes on a whiteboard, or perhaps trying to create something in Microsoft Word with shapes or, you know, doing some really dodgy looking line drawings in Microsoft Paint, because my skill level there is not the best. So the other alternative as well is that, you know, perhaps instead of trying to create something ourselves, we would go to the internet, we would try to find an image that matched what we were looking for. But what if we don't actually have access to what it is we're looking for? What if actually there isn't an image that exists of that particular thing in the way we want it to be? Or perhaps there is an image out there, but because of certain copyright considerations, maybe we're not actually able to use it in the classroom in the way that we want to. So here there's a real opportunity for us to be expanding our toolkit and have another option up our sleeves. So if we're not going to draw it ourselves physically, if perhaps we can't use an image that's already created, then maybe we can actually use AI to generate one that fits our specific needs and, through prompts, really refine it to get the best out of that image in terms of communication.

Now a small reminder too, while we are really focusing in on visual representation of information today, just a really quick reminder that anything that we're conveying visually, we want to make sure we're not just conveying meaning through that visual alone. So you're going to want to provide some alt text to go with that image, unless, of course, it's purely for decoration. And if you haven't checked it out already, you can jump back to episode two and learn a little bit more about that. Now, before I go on to that student perspective, I'd love to throw to Jo to talk about some images that we created with AI for a particular webinar and some of the really interesting happenings and things to be aware of.

Yeah, so a few weeks ago we were all kicking around kind of ideas for a webinar and I threw a prompt up into one of the AI generators I think it was Copilot and the prompt was create me, um, an AI classroom. And you know it was a very simple prompt, there wasn't a lot of detail in it and whatever. So we got four images came back um, all of rows of students sitting in desks, um, individual desks, facing a board, with somebody standing in front of the board. I mean, you know how 18th century is this? So I mean, all of us, straight away, we've got all that bias coming in of you know, this is how a traditional classroom looks and, perpetuating that, which is one thing to think about. All the students look miserable, which isn't really, as educators, what we're hoping for, I think, in our classrooms, is it? You know? I mean it's, do we have to really say in the prompt ‘make my students look happy, please’, so so we want our students ideally to be smiling, looking engaged, you know, looking interacting and interested, and one of the students had their finger up and it looked somewhat obscene.

So we have to be very careful when we are, you know, prompting these engines and getting an image, because at first glance, like four images pop up and they're nice and colourful and you know they look all modern and cool and all the rest of it. Oh yeah, I'll download that, put it in my article or put it in my web page or whatever it is, and it'll be fine. But just like the text that we've been talking about in previous episodes, you know, you've got to check that what you're getting back matches what you want and not just you know from the perspective of you know, does it describe the scene I'm after? But also, are there any inherent biases? Um, is there anything coming through in that image that conveys something that I'm not too happy with? So these are kind of things that you know, as an instructional designer, as a UX designer, you would want to be thinking about, and this is kind of top of mind. So I mean, you know Darren is our expert in that area, so what are your thoughts on this type of issue that comes up, Darren?

**Darren:** This is one of those cautious times where we need to tread carefully. Just because the tools can create images, we need to be really careful with what is actually generated. The bias is real and, just like asking the various platforms to do things, you need to be mindful of the prompt that you use when creating that image and does it perpetuate stereotypes. Remember, many of these platforms are trained from existing images and many of those may already contain existing biases or limitations. For example, many listeners would know the term curb cuts or, at the very least, have used them. These are the cuts into sidewalks, you know, generally at intersections where the sidewalk transitions and slopes down to the road. Initially, these were created to assist people in wheelchairs to transition from the footpath to the road and back, but these are just commonplace now as they're just useful for everybody. However, if you ask many of the existing AI tools a simple prompt of generating an image of a curb cut, the majority of them do a really bad job of what should be a relatively simple task. DALL-E shows wheelchairs with steps and paving and no ramps of sloping to the road. Leonardo shows, you know, weird paving and a couple of the others do similar things with paving and gutters, lots of bitumen and road, none of which look anything like an actual curb cut. It's like they know that there's a transition from a sidewalk to a road. They know it has something to do with disability access, so sometimes they'll put a picture of a wheelchair in there. They just don't know how to put all that together. That being said, I'd welcome anybody that's listening to go and ask the various AI image tools that are there to generate an image of a curb cut and send it to us, if you like, at feedback@ilotathings.com.

And I guess what I'm trying to say is that you need to be careful with what's generated by the tools and consider is it appropriate and accurate for your needs, especially if you may be generating an image of something that you're not directly familiar with. Does that image enforce existing stereotypes and views? Ask the tools, for instance, to create an image of a university classroom full of international students, and you may be surprised by the faces that it generates. And of course, therein lies the limitation in my prompt, you know quote international, but from whose perspective are we talking about international? And just back to what was mentioned earlier in regards to ensuring that we also have alt text to go with the images we generate. Keep the prompts that you use in generating an image. In many circumstances these can serve as the alt text, or at least a great starting point for creating useful alternate text.

And moving on from the cautious note that I started with, what really excites me in this image creation space is what Elizabeth touched on earlier, the ability for students to represent some information, their thoughts, their ideas in a way that many students may not have had the opportunity to do previously. It may be due to a disability or, like me, just a lack of skill and talent when it comes to drawing, for instance, my brain and my hands don't work in tandem to draw anything that I would consider worth showing to anybody. And as for geometric shapes that you were talking about, Elizabeth, my rectangles could be more considered as parallelograms at best. So you know, I rely on certain tools to produce graphics and to turn my ideas into imagery.And for many others that may well be the same. They've got the ideas, but they're not great at expressing them in a visual format.

And from an accessibility perspective, and in particular for some students with disability, the notion of creating an image from a text or from even a voice prompt opens a whole new world of expression and communication of ideas and thoughts, and we're just starting to see this manifest in lots of different ways, from background images to mock logos and company branding for group presentations, you know, example case studies, et cetera. You know. So there's this whole new era that's allowing people to engage in an art form where they previously may not have had access or at best, you know, limited access to that field. Now, an example you know I'll just give here is a course of a storybook and the potential that these tools have to make an individual's. You know imaginations take flight and I know you've been using AI Joe in storytelling and producing images around a narrative with your daughter. Would you mind sharing with us how you've been using that AI image generation with April and extrapolate that further to educators and learners?

**Joe:** Yeah, I mean it's amazing what's happening. I haven't come across yet a kind of story generator that will generate text and images in real time as we kind of ask it, you know, for the next stage in the story. But I have sat with April on a number of occasions and created an imaginary world where April is the main character and we have then prompted you know whatever the chatbot is to explore that world and you know she faces challenges and you know battles, battles dragons, and you know all the rest of it. And alongside that we've we've gone then into Copilot or we've gone into Leonardo and said you know, describe the scene. And it's created a scene which is amazing because I mean multiple means of representation and stuff like that. You know it's one thing to be reading something off a screen and imagining that and I mean I'm an old Dungeons Dragons fan, so I mean you're fully on board there with all that stuff but it engages perhaps a different part of your brain when you're looking at an image and an image that somebody else or a computer program or whatever has kind of formed another representation of the scene that you've described and stuff like that. So, the ability for both learners and educators now to explore different modes of expression, to create and communicate the concept that they're trying to get over.

Some people struggle with words and maybe they can express themselves better with an image. Yeah, and, and you know, working with an image generator might be a way for them to express what's in their head, what's in their feelings. You know, in a way that, and I mean art therapy is based around this. Um, you know, my wife's a psychotherapist and she employs art therapy and stuff with some of her clients and it's amazing. So I think we've got this new opportunity now. I mean, teachers have been using paint and drawing for centuries, but we've just got a new way of letting our students explore that area of visual representation. Um, and I mean, are there any downsides to this, Elizabeth, in terms of visual representation? You know, are there any danger signs that we need to look for from an education point of view?

**Elizabeth:** Yeah, I think the only danger I can really see is if we were using that image generation to assess understanding, but there's a way through that. So if we were getting a student to put together a visual image to show us what they know about a particular concept or about a particular process, no matter how they can draw or how they can put that together, we would typically couple that with some sort of reflective exercise. We get them to let us know what were those design choices, why did you put these particular things together? And I think if we just left that image generation, that's where the danger could be. But when we bring in AI, there are going to be those similar ways of having students still reflect on what's being created. We can be asking them what were the particular prompts that you used to create this image? Why did you choose this? Why did you ask it to turn this particular aspect blue, or why did you ask it to put these particular sections together? And how did you refine those prompts to get to what you wanted? And so, through that, to me it really closely mirrors what students might be doing anyway. It's just, rather than them designing by hand, or, perhaps, you know, taking images from the internet and putting them together on a document. We're just giving them another thing in that toolkit.

So I think there could be a danger if we didn't really probe for that understanding and really work to know why students are doing what they're doing and using it in that particular way. But I think there are really clear ways to actually make that understanding more visible, so getting to know why they've made those design choices. So, again, it's just adding that additional thing to the toolkit and we're still being able to see students understanding. We're just giving them another option to express what they know and I don't think there's any danger in that. We just have to think really clearly what is the goal of that activity and how can we then understand how students are accomplishing that goal? Or how can we actually make what could be invisible, like that prompting sequence, more visible? And that really brings me Joe, to thinking about some of the examples that you've looked at. Have you? I know we talk about, you know, showing students how to use prompts, but have you come across any examples where those prompts have formed a key part of students acting and expressing what they know?

**Joe:** Definitely, and you know reading other AI educators. Leon Furze is somebody that you should be following, if you don't already, in the AI space, and I think Leon is based down in Australia as well, but I think he was talking on a podcast recently and others as well about, you know, we're facing this thing of how do we assess, how do we figure out if our students are using AI and, if so, how can we fold that into authentic assessment. So, going back to you know what you were saying, Elizabeth, about kind of we're supposed to be measuring outcomes and we're supposed to. Well, very often one of the outcomes that we're trying to assess in a piece of work is, is my student able to critically assess? Is my student able to appropriately scaffold and create a sequence of either learning events or building on knowledge to reach a certain point? And now what we can do is say, well, yes, go off and use all these AI tools, but show us how you use them. So, in your submission, show us the end result, show us that image, show us that essay, show us whatever, but also put in a section where you show me the prompts that you used and for image generation, you know you might show me the original images that you submitted to Leonardo to use as seed images. Yeah, and then, as Elizabeth, you said, you know, kind of talk about the choices that you made, talk about the additions and changes that you made to the prompt. Talk about why did you go for a 16 by 9 format instead of a square format, you know, because I wanted a filmic look, because I wanted a panoramic look that told the story in a different way. And when you ask your students that they're delving into their process and they're, by default, reflecting on the journey that they've gone through to create that piece of work, and you get a much richer submission that you can assess on more axes, I suppose. So that's that's really important. I mean just one thing before we we do go on and it was on kind of like worries and dangers and things as, as far as I'm aware, at the moment, none of the major AI image generators automatically incorporate alt text in any of their images. So if you ask Copilot or Firefly or Leonardo for an image, you get these lovely images and you can download them and you can use them, but you have to remember to then go in and put in the alt text and we were talking about alt text in an earlier video, so that is a gap at the moment. I suspect that it will be filled at some point in the future. Darren, kind of tell me if I'm wrong on that one.

**Darren:** You're not wrong. It is definitely still a gap, as alt text is not officially embedded within an image file itself. If alt text were embedded with an image, then that may be useful in some instances. However, as we've discussed before, the context of the image, where it's used and what it is intended to represent may be different than that of what the image creator actually intended. Now Copilot, for instance, carries the text prompt used to create an image across to the designer application, so if you wish to manipulate the image further. In many of the image generators you can continue to add or remove from a generated image with follow-up prompts. But I've found that after one or two follow-up prompts it just starts to get messy and further from what you're actually after. So carefully considering your initial prompt is probably the best place to start. So consider what you want to have in the image, and being specific about the words you use can help in creating the image more in line with what you may have been picturing. So think of the prompt as the alt text that you would possibly use to describe your image as the end result. For instance, if I created an image and I had alt text that read student studying, you would all picture different scenarios of students studying, however, if my alt text was more detailed, like six students sitting around a table in a library, one of the students is in a wheelchair, another student is looking at their laptop, another student is wearing headphones and looking at their phone, the table has various books on it and some coffee cups. The students appear deep in thought. Then the image that would be created from that would be much better and more representative of that text. So the image generators work better with clearer prompts. So say what you mean and what you want to make up that image. What's the constitution of that? Being more specific also has the advantage of reducing some of that bias also that's inherent in the tools, and, as you've both discussed, it can be a really good reflective tool for students to examine what prompt was used when creating images using these tools. What biases do they bring to the table as well? We're just, I suppose, touching the surface of the opportunity that these tools can provide in enabling students to express their ideas in different ways.

For some students, the process of putting together a presentation for an assessment, for example, can be daunting. It may be a presentation to the class, and so they'll need images, text etc. to include. This is where these tools can certainly assist. You need some images to support your presentation or to give it a particular feel. Then you can generate some and you know, without necessarily the concern, apart from what was mentioned earlier with issues with copyright that you're not using somebody else's image directly in your thing. So give the AI your bullet points and it can even help further by helping you actually put that presentation together, and then you can go and tweak it further.

There's just so many options that are just now being realised, I suppose. Couple this with AI audio and video generation, which we will cover in future episodes, and you have a smorgasbord of options that allow people to express themselves in so many different ways and in formats that they may not have previously considered or was even possible. Now, of course, I've been speaking about image creation and generation, but there's a whole lot more than just that. AI image manipulation and editing has seemingly jumped into consumers' hands at lightning speed, all billed as enhancements and ease of use. You can edit at a background, at a different background, swap my face out, make me older, younger, restore an old image, colorize black and white photos, remove scratches, even place me in a different space and time.

And, Joe, I wanted to ask you that. There's a series of advertisements out at the moment showing some of the new camera options on mobile phones that are using AI, that take a series of burst images, then, using that AI, let the user replace the heads and faces of people in the images for ones where everybody's actually looking at the camera or is smiling. So you know it can pick from a whole range of photos, automatically input the best looking you know faces are the ones that are looking most directly at the camera. You know it's creating the image from multiple sources or multiple images that have been taken. It is a loaded question, of course I'm going to ask but is this a real image, a real photograph in the traditional sense, or is there something a bit in that uncanny valley territory that has me a little bit on edge?

**Joe:** Yeah, I've had my most popular camera club talk for the last year has been photography in an AI world, and I give this talk once, twice a week now to camera clubs all over the world and we discuss exactly this thing of is it a real photo? And I think you have to draw a distinction between what we consider to be a photograph, which is an image that's captured by a camera that represents what the scene that was in front of the camera at the time, whether that camera's a phone by a camera, it doesn't matter, you know, but but it's the scene that was sitting, that was, that was in front of you. And then an image, which is something different. So a photograph can be an image, yeah, but an image isn't necessarily a photograph. So if you now replace, you know, my, replace my head with Elizabeth's head in that photograph, you're going to get a much better looking photograph. But is it actually still a photograph? It's not a photograph now, it's an image. It's been manipulated, it's been changed, but even those lines are blurring because if I take a shot with my iPhone, it takes like 20 shots and it analyzes them all computationally and stuff picks out the shadows and the highlights and all the rest of it. I mean, it's not replacing my head with Elizabeth's yet, yeah, but maybe there'll be an algorithm that says you know, whenever we take a photograph of Joe, please replace it with Elizabeth. Yeah, so there's a difference between photography, I think, and kind of image generation. But image generation can create images that look like photographs. Now, but that's kind of a bit of a semantic discussion for photo nerds, really, isn't it? I mean, most people don't care. Yeah, they just want, you know, they're just looking at whatever is presented to them on a billboard or on the screen or whatever.

I suppose, as image creators, there's some things incumbent on us in terms of okay, tell the story that we really want to tell. Try and be aware of inherent bias. Try and be aware of other elements in that image that might be sending a message that we don't want, ensure that we put in appropriate alt text, ensure that we put the image in a relevant context in the piece of work that we're submitting it, and all those questions are fantastic questions to explore with a class. So you know this from an education point of view. There's your checklist, if you like, or at the start of a checklist, for how do we use, you know, AI image generation with our students. Well, well, set up a session, give them all access to Copilot or whatever, and then ask those questions and facilitate a discussion around them. What do you think about that? I'll throw that to Elizabeth.

**Elizabeth:**I think that's fantastic. I think the more that we can do getting students to really critically reflect on this new technology and whether the strengths and pitfalls might be, I think, the better they're going to be placed for the future workforce, which seems to be heading in a direction where AI might be seamlessly integrated into that work day in some way. So I think definitely deep discussion is going to be a fantastic way to go about that. So I know we've spoken a lot in this episode about creating images. So really thinking, you know, starting with the ideas and building from there. But in actual fact, we can start with an image that's already generated and then in some way edited or do new things to it. And I know you've spoken a bit about this outside of this podcast, Darren, and I'd love to ask you can you tell us a bit about that side of the image generation?

**Darren:**Yeah, look, it's easy to have that swept up and now we can just make images. Starting with an existing image can also be a great way to spark new ideas. Starting with an existing image can also be a great way to spark new ideas, the continuation of an existing theme or idea, or even using it for the colour palette or for the AI to build on and restore partially or completely missing artefacts inside an image. I mentioned earlier that AI restoring images. It can not only help restore that old image, it can also enhance it, colourise it, increase the resolution and we're seeing that in a range of fields, even through to, you know, enhancing video that was taken at a lower resolution and it can now be even put up to 8K, you know, resolution by AI.

Now I've used it to restore some old photos and some damaged photos of my parents and you know it can do a remarkable job of removing scratches and marks from the image and filling in those missing gaps. Now imagine some of the ways that this can be used in helping students engage with a particular topic as well. You could, you know, add in, for example, occupational health and safety issues into the scene of a workplace for students to identify and report on those issues or get students to extend an image, for example, of an archaeological dig, and include historically accurate items into that image. So there's a lot of ways that you can build onto that image.

The actual image doesn't necessarily need to be fixed. It's something which can be utilized and is transient in terms of their education, and we see a lot of that functionality already being marketed with those new phones I was mentioning. And even where you can just circle around something that you don't want in a photo and poof, it's gone. It will be able to erase something or somebody from the background. You can even use an existing image and use AI to modify certain elements in the image so that you can compare two different situations, i.e. that before and after scenario. Now, with all these new emerging areas of generative AI, there's lots of ways that this kind of technology can be used and I think again, we've only just scratched the surface of this new frontier of expression.

**Joe:** Yeah, I mean we are going to further explore this in future episodes. We're going to have a look at audio. We're going to have a look at video. We're going to have a look at web page creation. You know all kinds of stuff, and we're also very open to you sending in ideas as well. So if there's an idea you'd like us to explore, please do kind of let us know. Drop us an email. Go and play with these tools, you know. Come to the show notes, click on the links, go and have a play yourself, and the show notes are on the ADCET website, which is [www.adcet.edu.au/ilotathings](http://www.adcet.edu.au/ilotathings).

**Darren:** And, of course, we'd love to hear from you. So please do get in touch and let us know how you're using AI, you know how your students are using it and if any of these new frontiers that you're traversing are creating inclusive learning opportunities. And you can get in touch with us by emailing us at feedback@ilotathings.com.

**Elizabeth:** So I hope you've enjoyed this as much as we have and thinking about the ways that AI image generation can really be useful in that educational context and thinking through those ideas about accessibility in that UDL perspective. Thank you so much for listening and we really hope you can join us for the next episode, as we'll continue to explore ILOTA Things. Till then, take care and keep on learning and see you next time.

**Joe:** Bye.

**Darren:** Bye.

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