

## ***Koto-tsukuri: Education at the Interface***

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### **Abstract**

The move to online was a serious disruptor. We reflect here on almost three years of fully online educational work at university level in a science-based curriculum in Japan. Presented as a workshop at the conference, participants experienced a real-time deployment of a class management system put together with low-code tools. Initial setup was to log in, interact, and see an automatically generated dashboard that visualises the workshop's progress. The technology is one kind of "interface". A second and more important "interface" is the motivation behind the approach. The full paper describes how a move to online classes based on the presented low-code system increased student-student and teacher-student interactions and also the interaction of both student and teachers with the learning environment. We discuss how the Japanese concept of *koto-tsukuri* was part of the motivation and framing of the work. The paper also presents evidence showing a significant increase in student satisfaction corresponding to the introduction of these ideas. This is done using data from a university-wide assessment tool that asks students to identify all classes that are in the top 10 percent of those they have ever taken. The average rating based on this instrument increased around twofold between 2019 and 2022. For the workshop, participants were told that they should come prepared to think, to interact, and to physically do a few things.

Keywords: Low-Code LMS, Dashboards, Video Contents, Disruption, Experiential Learning, YouTube, Creator Economy, Educational Futures

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## Introduction

Improvements in computing power, networks, software, and video technology resources have seen the rise of the “creator economy”. Before Corona, it was possible to see the possibilities for education as distinct from this trend: “live” classes in physical rooms could be considered a privileged space. But, faced with the abrupt shift to online teaching in 2020, some educators may have been unsure of how to escape from a figurative hole to find the solid ground of effective online contents.

This paper reports the subjective experience of one attempt at “climbing out”. From the start, the hole had the feeling of being at least three years deep. At the time of writing, there are still a few months of the third year to go, but there is just enough scope for some reflection.

This paper will use the Japanese notion of *koto-tsukuri* as a framework to shape and to motivate the discussion. The word *tsukuru* is a Japanese verb meaning “to make” or “to create”, but to explain *koto* requires a dedicated section. After this background, we introduce a low-code LMS tailored for flexibility, and discuss how the system was used to manage video content and to allow students to share experiences. Examples are drawn both from actual classes where these approaches were used and also from the workshop that formed the presentation vehicle at the ACE conference. Finally, evidence of effectiveness is presented from online teaching in four 15-week science classes at a technical university in Japan.

## Koto-tsukuri

The idea and motivation of *koto-tsukuri* has been a persistent background to the author’s educational work, for example, see Frank & Field (2007) or the site [www.koto-tsukuri.org](http://www.koto-tsukuri.org). The basic concepts can be presented by the diagram of Figure 1, which shows a rendering of a sketch drawn by the Japanese scholar Minakata Kumagusu (the sketch featured in a letter he wrote in 1893; the photo of him in his youth is from WikiMedia Commons).

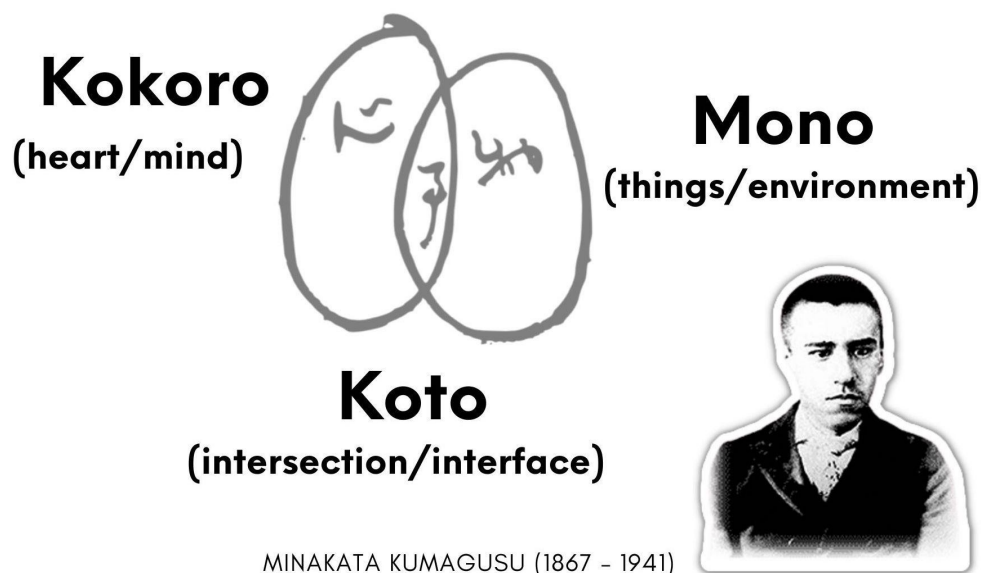


Figure 1: Diagram illustrating *koto* penned by Minakata Kumagusu

The diagram defines the essence of *koto* as being the intersection of the inanimate (things, environment, *mono*) with the animate (heart, mind, *kokoro*). The extension of the term to

include the verb *tsukuru* denotes the practice of working to increase the size or aspect of this intersection. One of Kumagusu's passions was biology, and another way to approach his ideas on *koto* is through the notion of "ecology", which for brevity we frame with this core definition:

*the totality or pattern of relations between organisms and their environment*  
<https://www.merriam-webster.com/dictionary/ecology>

There are many pedagogies that focus on interaction and student engagement in the learning process, including active learning and problem-based learning (PBL). There are also approaches with an emphasis on aesthetic aspects, such as Learning Experience Design (LXD, see <https://lxd.org>). One way to consider *koto-tsukuri* is as a lens that allows these multiple educational approaches to be viewed through the way that they build and encourage interactions between participants and environment.

For example, consider how active learning involves hands-on and interactive activities that encourage students to actively construct their own knowledge and understanding, rather than simply receiving information from a teacher or other source. The perspective of *koto* intersections between learner and environment is evident in active learning practices such as discussions, collaborative projects, and experiential learning. PBL is more focused on solving real-world problems and challenges as a way to learn new concepts and skills, and here it can be the small-group brainstorming, research of relevant information, and presentations of findings that bring *koto* aspects. In terms of design, it can be the recognition of the importance of challenging visual and other senses in constructing the learning experience.

Since a change in "the environment" was one of the defining overall impacts of the pandemic on education, *koto-tsukuri*, with its emphasis on relations between people and environment, offered obvious potential for approaching the new circumstances. In the language of the "reflective practitioner" (Schön, 1983, pp. 39-40), *koto-tsukuri* represented one path towards constructing responses to "problematic situations which are puzzling, troubling, and uncertain" by offering a way to help "name the things to which we will attend and frame the context in which we will attend to them".

This framing of privileging and aiming to enrich the totality of students' and teachers' interactions with an environment can suggest new tools, new ways to use existing tools, and also encourage the searching out of helpful educational practices or frameworks. To demonstrate from experience, the list below presents specific features of the online classes delivered by the author over the past three years, using the categories described by (Kennedy 2020) in a Melbourne CSHE discussion paper addressing engagement in online learning:

- **Interaction.** Free form student feedback at the end of each class; Popup quizzes tied to each week's content; small-group Zoom breakouts for watching weekly video content and answering popups; student video reviews shared in-class. (Note that the discussion paper's sub-categories of learner-instructor, learner-learner, and learner-content interaction omit the combination "instructor-environment interaction". Improving this category of interaction through a dashboard interface that enhances an instructor's ability to monitor and to react to a class in real time is one aspect of the description of the LMS in the following section).

- **Interactivity.** OBS (<https://obsproject.com/>) software for incorporating professional broadcasting elements (overlays, information boxes, insets, tickers, special effects) real-time into a class; the site whiteboard.fi for group ice-breakers & illustrative tasks; CommentScreen for interactive scrolling display of chat comments.
- **Design.** Feedback on student comments presented in graphical “Q&A” style; videos produced to high audio and visual standards; web page class materials environment bit.ai chosen for its design credentials; low-stakes and frequent assessments.

Concrete examples of some of the above practices can be found in the following sections, as well as a description of the low-code LMS that was developed to help deliver the interactive functionality. Before moving on, let us also touch briefly on some of the less quantifiable aspects of the shift to online. One reaction that seemed often-voiced was the sharing of a dislike of a teaching tool, whether Zoom, MS Teams, or some other online video-based system. It’s understandable: that thing in the environment that changed, that thing that’s not you and not me, that is a good place to hang some frustration. But at the same time it was also possible to appreciate a different pattern of relations in the shared experiences of online classes. Some educators working from home may have felt the change in atmosphere that comes from inviting students into their personal spaces to study. Many students and teachers may have found that they did not miss the need to travel before 9am classes (*“Thanks to this class, I was able to wake myself up!”*). Possibly, there were new experiences of the class dialogue drifting to unusual things: the occasional distractions of daily life in the neighbourhood, or the differing experiences of weather across locations (*“I couldn’t hear the thunder in my room when the teacher said, “Thunder!” So, I counted the number of seconds until I heard it and calculated the distance of my room from the place where the teacher was. I am not sure if it is accurate because it does not consider the time difference of the network.”*) If teaching in an environment where the students have their cameras turned off, an instructor is even free to imagine an audience far more rapt and understanding than before, with no hindrance of visual feedback to dissuade from the pleasant fantasy.

Deeper discussion of these aspects of the online experience is for a different time. Since the development of a home-brew LMS system was a more concrete part of interfacing online, we move on to introduce first the system itself, and then some ramifications.

## A Low-Code LMS

A separate paper in this proceedings (“Learning From Events”) details how the selection of the “Airtable” database platform for implementing an LMS had its roots in the creation of administration platforms for arts events. The goal in the current paper is to describe the mechanics of the developed system, give some examples of how it was used to create experiential workshops (at ACE and elsewhere), and then present evidence of student satisfaction from classes using the platform in university classes over three years.

For teaching purposes, Airtable allows an educator to easily set up a database back-end that maintains all necessary per-student data, and can facilitate the monitoring of all data and progress through summaries as well as with graphical interface extensions that produce functional and attractive visualisations. It can also serve as a centralised repository to bring order to class resources, such as a database of videos, or weekly quiz questions and answers. It has a built-in forms feature that allows for the collection of data directly into a database.

While the form capabilities are currently comparatively basic, it is also possible to use automations to transfer results from other platforms into an Airtable base, for example from Google Forms or TypeForm. These features combine to make Airtable a convenient way to bring together student and class information in a centralised resource.

To provide each student with individual access that allows them to view and to edit data, a second software service, Stacker, is more cost-effective. Both Airtable and Stacker are subscription services, but the per-user pricing of Airtable makes it more suitable for the main administrator (the educator), with the per-app pricing of Stacker used to provide an interface for each student (or learner, or workshop participant).

The login process used during the ACE workshop is similar to that required when using the system for classes, and is shown in Figure 2, where the workshop is titled “Interface Workshop”. Valid email addresses can either be pre-registered or added in real time with an Airtable form. The latter approach was used to register ACE workshop participants (with clear privacy conditions), and the steps 1 to 4 allowed all to view their own home page in Stacker at the start of the workshop. Most participants carried out the process on mobile devices: the interfaces work well across platforms.



Figure 2: Login process used in IAFOR workshop at ACE2022, Dec 1 2022

The following sections pick out some messages from the ACE workshop activities. In terms of system design, a key motivation for using Airtable was the freedom for the instructor to process and visualise data, especially via the creation of custom dashboards (for concrete examples of dashboards created by Airtable, both in education and in events management, see the “Learning from Events” paper elsewhere in this Proceedings).

Freedom of scripting and data presentation is less common in most dedicated LMS systems, and a low-code approach has the advantage of potentially adapting quickly to changing trends in software design. An industry summary by Brown (2022) quotes TechRepublic as assessing

that “nearly 60% of all custom apps are now built outside the IT department. Of those, 30% are built by employees with either limited or no technical development skills”. Brown summarises these developments as helping “organisations reduce backlog, decrease costs, [and] improve agility”, further quoting a Gartner prediction that “by 2024, low-code [...] will be responsible for more than 65% of application development activity”.

Note that an adaptation of the basic Airtable framework has already been deployed in a *koto-tsukuri* way in the field of Medical IT, as a proof-of-concept for new approaches to online training and learning through video. In a 2½-hour workshop, around 200 participants used the process shown in Figure 3 as part of the international conference “Moving Forward in Unity: Nursing Through the Covid-19 Pandemic” (<https://mfu2021.mfu.ac.th/>). The developed system allowed groups to carry out problem-solving steps of diagnosing patient symptom examples, with the next stage of the video training being delivered to the smartphones of all group members. Each groups’ selections resulted in different videos being delivered, as they together experienced and reflected on the challenges of medical diagnosis. This general theme of video as a tool for interaction is continued in the next section.

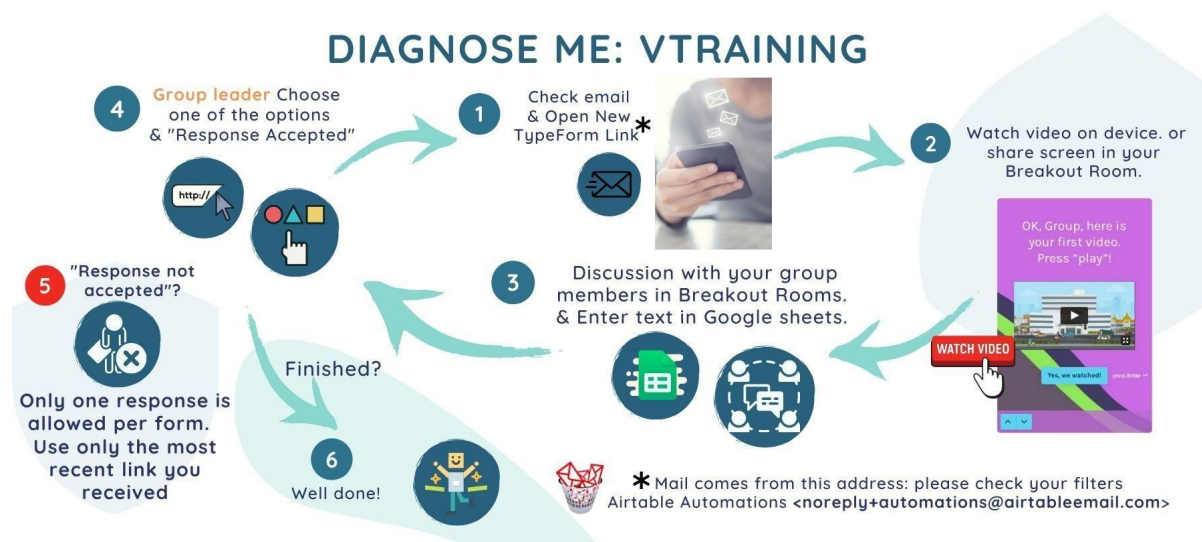


Figure 3: VTraining process used in MFIU conference workshop, Nov 23 2021

## Managing Videos

At the very beginning of the pandemic, the first step when creating an Airtable-based LMS to use in university classes was implementing the basic functionality of collecting written student reviews on videos and sharing the reviews within a class. Each student giving of their own thoughts and having their words affect the class environment can be seen as a simple kind of *koto-tsukuri*. The interface allows reviews to be recorded using whatever nickname the user chooses, as shown in the expanded view from a third-year class in Figure 4 (many of the comments are in Japanese, but readers should get the general impression).

Video content had the feel of being a better “fit” for the Zoom delivery environment, and compact videos (usually less than 5 minutes in length) were targeted due to considerations of attention spans and of what Hirsch (2014) has called “thinking like an architect”. Specifically, shorter content gives “construction” flexibility in the way that materials can be incorporated into a class, and leads naturally to the use of videos as springboards for interactions such as “classroom applications and activities that provide flexible, differentiated, and hands-on



opportunities for authentic learning” (*id*). A small selection of suitable content was already available online, but a large number of original videos were required because of two factors limiting the pool of resources: the technical nature of the subjects being taught, and the need to make contents understandable in the context of a Japanese university education.

The screenshot displays the Stacker interface with three video lesson cards. Each card shows the video title, duration, and a progress bar. Below each card, there is a section for student reviews, including a 'Your SR' (Student Review) button, a 'Your Reviews' section with star ratings and comments, and a 'Collected Reviews Short' section with a summary of overall ratings and a list of student comments.

**AI 2021 Evaluation**  
 Details: wk15 [1:08]  
 Stats: 20回 (4.95)  
 Description (J): 授業のまとめと最後のメッセージ 未来に向かって成長していくために...  
 Description: Thanks for taking my course! Class wrap-up and final messages. Growing into the future...  
 Your SR: Complete (5) (1回) +50  
 Your Reviews: ★★★★★ お疲れ様でした。... +35  
 Collected Reviews Short: 5 Stars overall (25 votes) 後期の短い間ありがとうございました。楽しかったです。(by ひねり) とても充実した授業でした。ありがとうございました。(by チャンスタイム) 楽しい授業でした (by ゆへ。) IAN. I think this class was really important to my school life. I love AI and FUN and YOU. Thank you. (by IANII) It is the best class ever! (by Atto) お疲れ様でした。楽しい授業でした。(by ATARA) 後期の間、お疲れ様でした。(by Kei) とても楽しい授業でした。(by 無号機全回転) Thank you very much! (by fan) The best lecture of my life. (by くよくや) とても面白い授業でした！半年間ありがとうございました！(by BOXSTEPPER) Thank you for the fun class! (by poi) This class was a lot of fun. I look forward to seeing you again in class. (by 米びつ) The quality of the videos was very high and I didn't get bor (more...)

**Who Lives Where, Part III**  
 Details: wk15 [2:36]  
 Stats: 38回 (4.84)  
 Description (J): 制約ネットワークでアークの整合性を確認するための2つの異なる方法を紹介しま... 最初のAC-1は、ルックアヘッドチェ...  
 Description: Two different methods for producing arc consistency in a constraint network. First AC-1, which just puts a loop around a look...  
 Your SR: Not rated yet Not rated yet +49  
 Your Reviews: ★★★★★ AC-3最強！(by MK...) +29  
 Collected Reviews Short: 5 Stars overall (24 votes) 制約ネットワークでアークの整合性が確認できた面白かった (by ノリ打ち) 制約充足問題についての理解がより深まった。(by インパクトモート) おもしろい (by ゆへ。) AC-3は最高 (by IANII) アニメーションによって理解が容易になった。(by AAA) AC-3が効率的なことが分かった。(by ぼい) AC-3最強！(by MKM) トラックのたとえがわかりやすかった。(by BOXSTEPPER) 統合性が重要だと分かった (by 夜神月) 減るか減らないかでキューにストックするかどうか決めるのは納得した。(by Kei) とても楽しい授業でした。(by 無号機全回転) AC3の凄さが分かった。(by t) トラックで表していたのですぐわかりやすかった。(by yasui) 理解することができた (by hanamizu) AC-3 is good (by SC) 制約チェックが大幅に減った！(by い) とても興味深かった。(by Chica) アニメーションがわかりやすかった。(by II) AC-3は効果的です。動画のイラストの色合いが個人的に好きでした。(by h s) AC-3はすごい (by h) 回を進めるごとにどんどん便 (more...)

**The Frame Problem (Steins;gate 0)**  
 Details: wk14 [16:11]  
 Stats: 37回 (4.87)  
 Description (J): この動画は主に日本語です。「シュタインズ・ゲート0」のゲーム動画です。大学の授業で見るとは珍しいスタイルです！「...  
 Description: The video is mostly Japanese. It is a game video from "Steins;gate 0". It is unusual style to watch in university class! The "Frame Pr...  
 Your SR: Not rated yet Complete (5) (2回) +49  
 Your Reviews: ★★★★★ The frame problem... +54  
 Collected Reviews Short: 5 Stars overall (46 votes) Steins;gateはいいぞ (by ゆへ。) フレーム問題を解決するにはあらゆる状況の処理が求められるためボトムアップ型AIの開発が必要であると考える。(by ゆへ。) 教師あり学習のように教えられたことを実行するだけでなく、自ら目的関数に従って学習する強化学習のようなシステムでないとフレーム問題は避けられないと思った。(by PPO) エル・ブサイ・コングルウ (by CERN) フレーム問題は自分には難しかった (by bbb) 正解を教えてAIに学習させようという方法自体が間違っているということだと思うので、脳についての知見を待つだけではなく、強化学習などの報酬をや自ら学習するような機構を使用して実験をしたら良いのではないかと考えた。また、それが脳研究への情報提供にもなり相乗効果起きるのではないかと考えた。(by 10) フレーム問題を解決した人工知能を実現させるには、人間がどのようにして適切な暗黙知を選択して疑似的にフレーム問題を解決しているかを深層学習などを用いて研究し、その過程を人工知能に搭載すれば実現可能だと思う。(by フルフロントル) フレーム問題は人工知能が人間のように命令をいい感じに解釈することができず、忠実に行動しすぎてしまうことから発生するということがわかった。(by NE) フレーム問題を解決することが重要である (by res 櫻沢) (more...)

Figure 4: Screenshot of Stacker interface showing student reviews from 3rd year class

The time required to produce video meant that for original content only the “high value” core class contents were selected for conversion to video, and quality and variety in production style was set as a priority, with the aim of engaging students. A secondary benefit of aiming

for a high quality was gaining some understanding of the scale of the longer-term goal of creating content that might be usable by other educators in developing courses on similar topics. As a first step towards this larger goal (a step that can be viewed as increasing the *koto* intersection with the much larger environment outside the class), a subset of the developed videos was shared publicly on YouTube, by creating the channel “a bit of intelligence”.<sup>1</sup>

For classes, collecting and sharing reviews outside YouTube itself was useful both because YouTube comments are not anonymous and because sharing opinions on third-party “curated” videos was also a goal (in Figure 4, the right-most video includes an icon of a painting 🖼️ to indicate that it is a third-party video: the content was curated for the course by adding bilingual subtitles and description text). YouTube does offer the alternative of using private channels, but analytics available to owners of these channels are limited (making monitoring more difficult), and third-party content cannot be re-uploaded. YouTube policies on delivery of content also tend to change over time, sometimes unpredictably.

To demonstrate the video reviewing functionality at the ACE workshop, all participants communally watched one original video of less than a minute’s length. The video chosen was “The Teddy Bear Approach”, which originates from the field of computer science but still carries a general lesson about the benefits of interacting with the environment, even if the environment impassively provides no feedback (readers with an interest can find the video on the “a bit of intelligence” channel). One of the reviews recorded through the Stacker interface at the workshop was: “Fantastic teddy bear approach, shall chat more with teddy bears :p”

In actual classes, text from student reviews is used when creating “Q&A” banners for following weeks’ class web pages. Students report that they appreciate seeing each others’ comments used in this way, for example as shown in the class banner of Figure 5 (the English is a DeepL translation of the original Japanese).

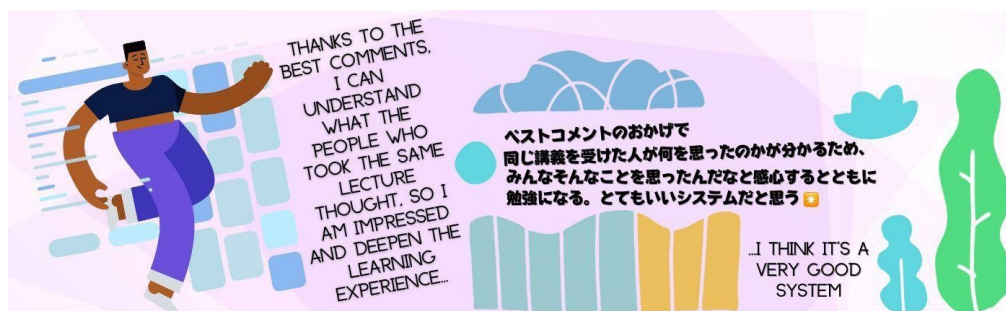


Figure 5: Example “Q&A” banner used to present and comment on feedback graphically

<sup>1</sup> Since one of the courses being taught was a programming course, it is interesting to consider the views of David Malan, the leader of Harvard’s CS50 (Computer Science) course. As reported in (Orbey 2020), Malan regards it as “Wasteful... to have thousands of teachers, in computer science or other fields, all doing the work of devising similar curricula.” It’s possible that one result of increased video output creation by educators, in part spurred by the pandemic, could be a movement towards Malan’s vision where the sharing of resources can free teachers to do their best work: “I don’t think we want just one introduction to computer science and one introduction to psychology or any such field... But there’s probably a number around dozens—hundreds—that makes more sense?” (id). One can imagine a modified version of Malan’s perspective where large numbers of educators prepare tailored curricula, but select resources from a communally shared pool of gradually refined materials.



## Managing Activities

With a theme of creating interactions between participants and the environment, the ACE workshop needed a physical activity. Figure 6 shows the results of the participants' efforts to respond to the challenge of representing the experience of the Corona years using just one square of baking foil.

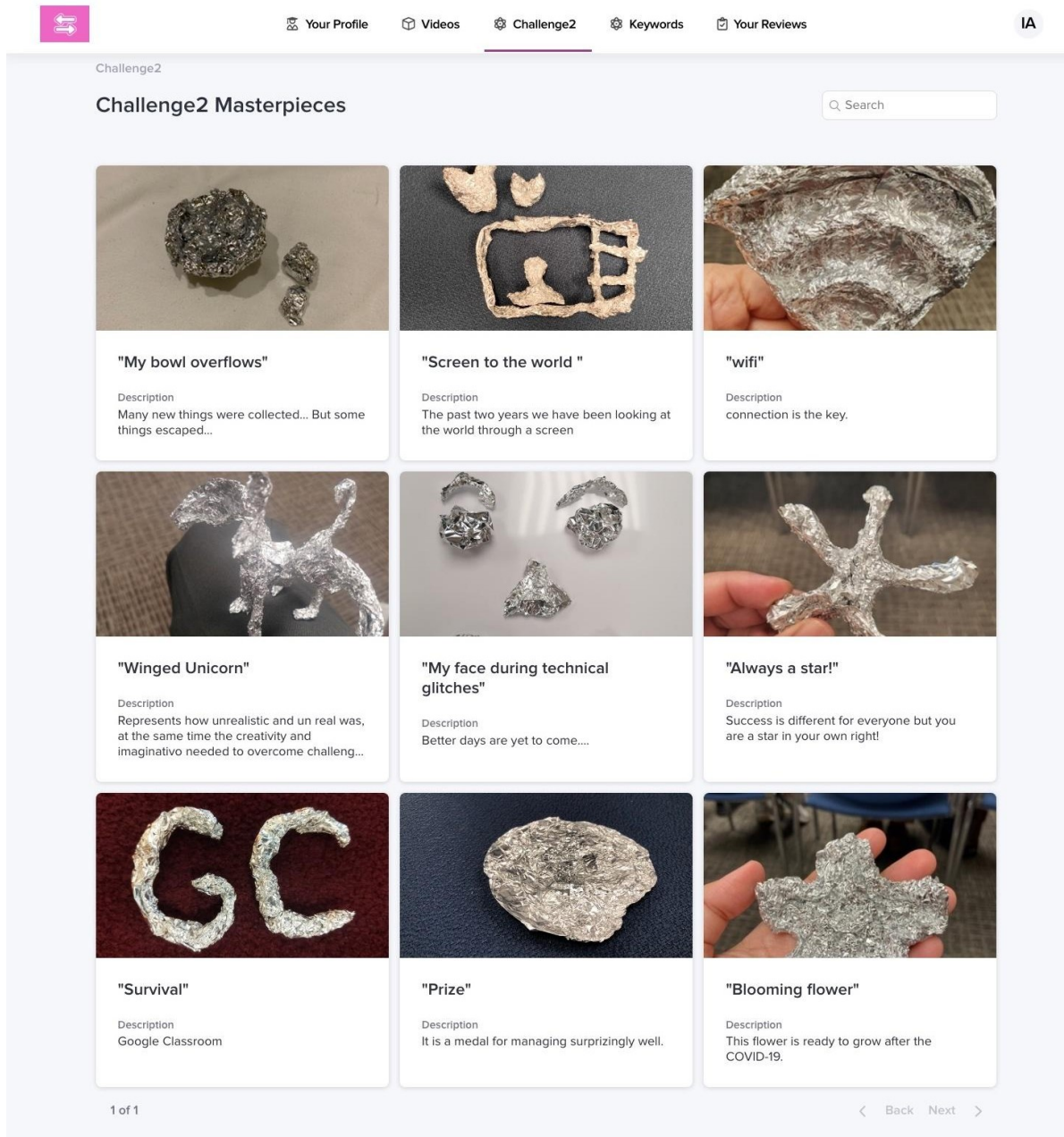


Figure 6: Screenshot of Stacker interface showing baking foil creations by workshop participants

Diverse results were maybe to be expected from an audience of educators, and they allowed a debrief where participants could talk with relative freedom about personal experiences (it's an interesting lesson from workshops that it can be easier for participants to describe some external object rather than to directly describe something personal, even if the message is essentially the same).

The Stacker interface allowed everyone to simultaneously view all the works, in addition to exercising (showcasing?) the participants' snapshot and description writing skills. The gallery approach scales to much larger numbers of participants, and also translates into an online environment, where finished products can be uploaded asynchronously. It can be a challenge to incorporate actual physical activities into online classes, but uploading photos or even video can allow many kinds of experiences to be shared. As an example, the channel “a bit of intelligence” contains a digest compiled from videos that students recorded of their own individual efforts at building towers from paper (the exercise was used to illustrate some everyday and some technical aspects of the effects of “constraints”). Online resources can be used to find inspiration for activities, and one that can be recommended is the site [businessballs.com](http://businessballs.com), from which the workshop idea of creating shapes from baking foil was extracted. Although trying foil for the first time, the activity fully delivered as advertised: “baking foil is a wonderful material for model-making... Baking foil is clean, looks great when put on display, and is very easy to clear up. Most people will never have tried using it before, so it's very new and interesting and stimulating” (Businessballs 2022).

The Stacker interface of Figure 6 also shows a “Keywords” menu that was included in the workshop application as a further example of possible interfaces. When used in classes, another main function of the LMS is to provide per-student control over responses to quizzes that are built around class videos. The *koto* perspective of encouraging engagement with an environment is reflected in the use of the gamification metaphor of “Unlocked Content” for quiz answers that are presented as designs, as shown in the example of Figure 7.

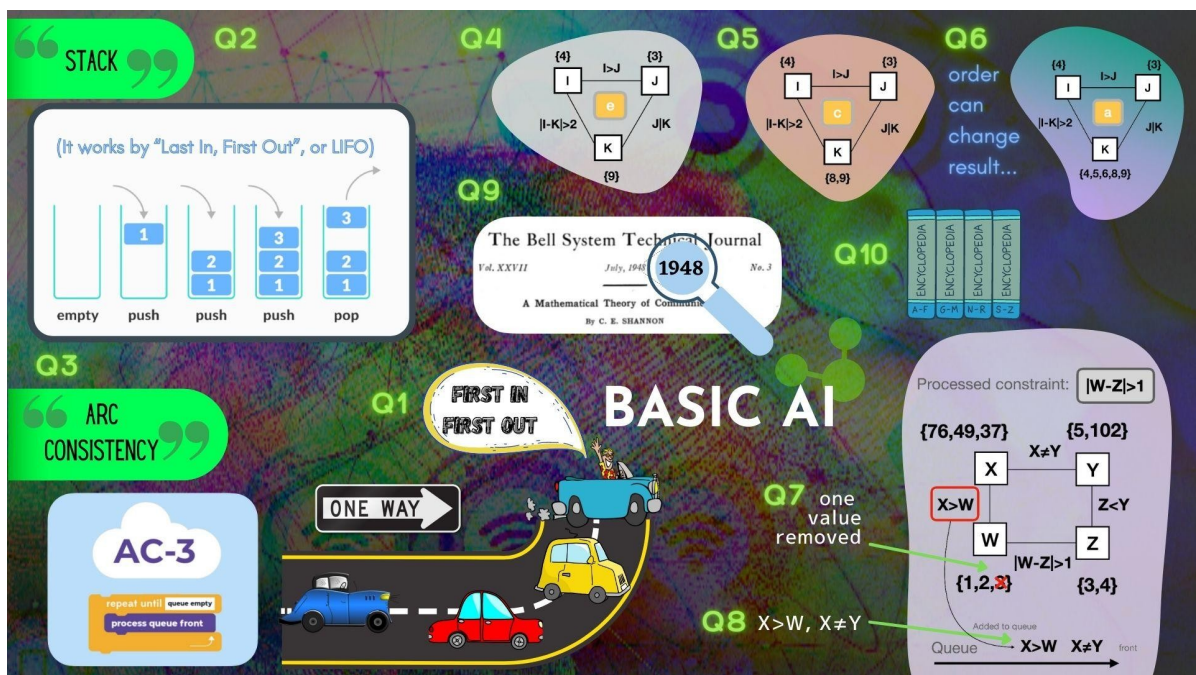


Figure 7: Example “Unlocked Content” from a university-level AI class

## Some Evaluation & Reflection

The graph of Figure 8 shows the evaluations from the four university courses sole-taught by the author over a seven-year period, comprising one 2nd year course, two 3rd year courses, and one master's level course (the 2022 editions of the master's class and the 2nd year class are still ongoing at the time of writing). The evaluation instrument was a university-wide tool asking students to anonymously specify levels of satisfaction. The graph shows the

percentage of responding students to select the top level of “extremely satisfied”, which the evaluation instrument describes to students as being “particularly excellent (within the top 10% of classes you have taken to date)” (translation from Japanese).

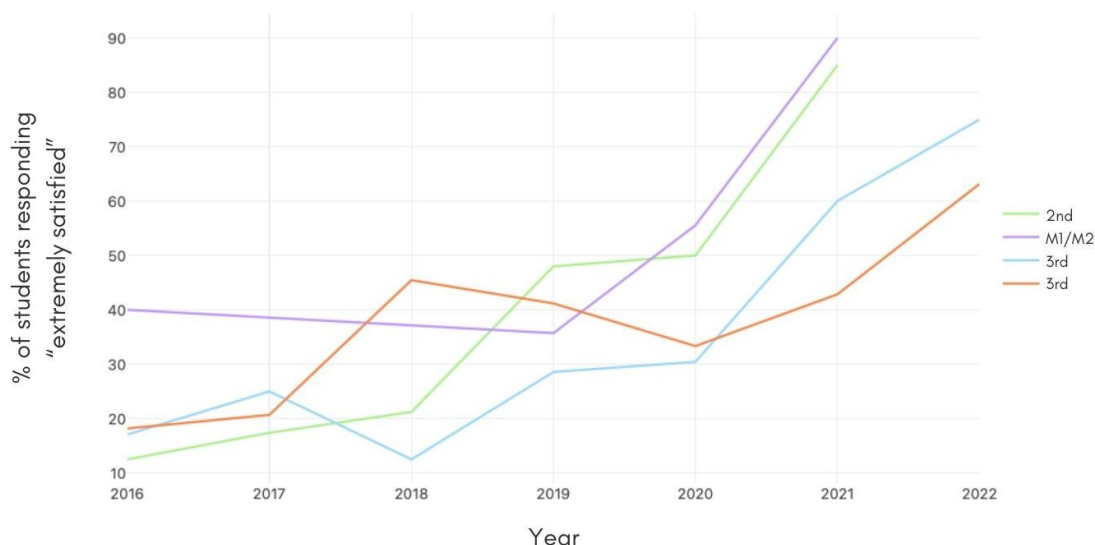


Figure 8: Seven years of evaluations from university-level classes

At scale, the phrasing of the evaluation question should result in an average “extremely satisfied” rating of around 10%, so the results are encouraging both for the generally high figures, and for the increases since 2019. All classes were moved from face-to-face to fully online from 2020, with online delivery using Zoom and the Airtable LMS (with the exceptions of a few face-to-face workshop-style classes that were possible in the master’s class towards the end of 2022). Video contents, LMS features and production values of the online screenshare were gradually improved as time allowed over the three years of online teaching.

In addition to the teaching environment, there are many effects that could account for increasing evaluations, including the switch to video contents, the greater exposition clarity and expunging of errors that resulted from the extended preparation time of video creation, the different teaching practices afforded by new materials, and the degree to which the students pick up on the level of enjoyment or stress of the educator leading the class.

Many educators have been encouraged by positive online experiences and student feedback such as those above. Some have used their experiences to suggest that “lecturing doesn’t work” when discussing face-to-face teaching at “the chalkface” (Challen 2021). While this conclusion can hold for individuals, institutions may profit from a broader perspective in this period where many are considering how to best learn from the experience gained during the pandemic. The choice of a workshop format as the delivery method for this paper at ACE was itself a nod to the *koto* importance of active face-to-face experience.<sup>2</sup> Since the overall impression of the disruption of Corona is one of increased opportunity for moving forward with new tools, new methodologies, and new perspectives, we may be reminded of the insight offered by Bateson (1979) when contemplating the larger challenge of balancing the

<sup>2</sup> The absence of other presentations in the form of workshops at the conference seemed to serve as some kind of emphasis.

two processes of rigour and imagination: “The practical problem is of combination. How, recognising the dialectic relation between... poles of contrast, shall we proceed?” The hope for this paper is that it may provide some food for thought for one possible mode of combination, in the model of the *koto* interface.

## **Conclusion**

The pivot to online presented educators with the opportunity to experiment with alternative teaching models. This paper has documented one thread of changes that were implemented in 15-week science classes in a Japanese university, and showed that the classes were highly evaluated by students over three years. Interpreted as an educational philosophy, the concept of *koto-tsukuri* was put forward as a framework for guiding the selection of teaching methods and materials to promote a wide range of interaction. Examples were given of how a low-code LMS allowed this goal to be approached in online classes. Video content was highlighted for its ability to compactly present key messages in an engaging way, and to act as a springboard for discussion, problem-solving and sharing of opinions. Viewed through the high-level perspective of *koto-tsukuri*, the agenda becomes not so much one of which modalities can be best used for delivery, but how educators and students can arrive at the tools, techniques and content that best result in the interactions that lead to their educational goals. It’s more of an ecology than an economy, but the question is still: “What can you create?”

## **Acknowledgements**

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