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DESIGNING FOR SELF DIRECTED LEARNING

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This paper presents a design process toolkit aimed at helping teachers design lessons to develop self-directed learning competencies in students. It applies the design thinking process – comprising empathise, define, ideate, prototype and test –to learning design. The toolkit is created in response to teachers' desire for more support and scaffolding to help them realize self-directed learning in their respective classrooms, moving SDL from a theoretical concept to an actionable target. This toolkit thus features concrete steps and strategies that teachers can try out during lesson planning, offering them a set of lenses through which they can approach SDL. It can be used by all teachers across subjects and grade levels. Not intended to be prescriptive, the toolkit serves as a springboard for teachers to experiment and innovate in the context of SDL.

Keywords: self-directed learning, design thinking, learning design, student-centred

BACKGROUND ON SINGAPORE'S ICT MASTERPLAN

Singapore has embarked on its journey of using ICT in education in 1997, which say the birth of the first ICT masterplan, focusing on foundation building. The strategies adopted then were core teacher training and provision of ICT infrastructure, to support the incorporation of ICT into classroom teaching and learning. Introduction of the ICT masterplan 2 in 2003 saw a shift toward seeding innovations for engaged learning. Various ICT innovation programmes such as the LEAD ICT@Schools Programme and the FutureSchools@Singapore Programme were launched during this phase of the journey to encourage experimentation and creative use of technology to enhance teaching and learning. Now into the third phase of this ICT in education journey, the ICT Masterplan 3 (mp3) seeks to transform learning through effective use of technology, where its outcome goal is for students to "develop competencies for self-directed and collaborative learning as well as becoming discerning and responsible users of ICT."

Under the mp3 framework, teachers are positioned as enablers. mp3 has identified as one of its three enable goals, "Teachers have the capacity to plan and deliver ICT-enriched learning experiences for students to become self-directed and collaborative learners, as well as

nurture students to become discerning and responsible ICT users." 1 In order that teachers are able to guide students in developing SDL competencies, teachers need to understand what SDL constitutes and how to intentionally design lessons that cultivate self-directed learning (SDL) competencies in students. The NIE monograph titled *Self-Directed Learning with ICT: Theory, Practice and Assessment* addressed this knowledge gap. The monograph offered a clear definition and explanation of SDL, providing principles for curriculum and lesson design, as well as share lesson examples and insights on assessment pertaining to SDL.

Despite the clarity offered by the NIE monograph, there remains the need to translate the 'what' of SDL into 'how' to SDL - how might teachers translate knowledge and ideas about SDL into tools and concrete classroom strategies that teachers can apply across contexts, subjects and grade levels. An often-asked struggle articulated by teachers is that even knowing what SDL and how SDL lessons probably can look like, it is difficult to start. There is a very real challenge of transiting from existing practice to conscious infusion of SDL into lessons. It was these observations that inspired the development of SDL design toolkit, to help teachers translate their knowledge into practice. At the very heart of the toolkit is the philosophy that students should be at the centre of the curriculum and lesson design process and what this toolkit hopes to achieve is to offer teachers a systematic way to bridge the gap between SDL in theory and in practice.

RATIONALE FOR SDL DESIGN TOOLKIT

The SDL design toolkit is intended to be a tool for empowering teachers to experiment and innovate within their sphere of influence to deliver academic outcomes while developing 21st century competencies among students. It is premised on the notion of teachers as designers, i.e. creative individuals, and seeks to help teachers realize mp3 goals and effectively harness technologies for learning. Through the methods proposed in the toolkit, teachers can look forward to unlocking more of the creative potential that is within them and explore new terrains.

DESIGN THINKING AS APPROACH TO LEARNING DESIGN

The SDL design toolkit borrows heavily from the design thinking bootcamp bootleg published by Stanford University Institute of Design2. The process – commonly referred to

[1] This outcome and enabler goals are extracted from the Singapore's ICT Masterplan 3 Vision and Goals webpage on the ICT Connection website: http://ictconnection.edumall.sg.

[2] The design thinking bootcamp bootleg can be downloaded from the Stanford University Institute of Design website: http://dschool.stanford.edu/use-our-methods/.

as design thinking – draws on methods from engineering and design, combines them with ideas and tools from the arts and social sciences, as well as insights from business.

Design thinking is premised on design as a human centred activity tapping into collective knowledge and encouraging participatory design. Cruickshank & Evans (2012) illustrated this point with two case studies in the context of business development. They echoed Brown's idea that applying designing thinking to creating "ideas that better meet consumers desires and needs' is "strategic, interdisciplinary and leads to dramatic new forms of value." (Brown (2008), cited in Cruickshank & Evans, 2012: 75) Through the two case studies presented, Cruickshank & Evans (2012) demonstrated the value of applying design thinking to problem solving, articulating its affordances for application beyond the field of 'traditional' design. Following the authors' line of reasoning that design thinking can be cross- and inter-disciplinary, it is thus logical and reasonable for educators to harness design thinking in the process of tackling learning problems or educational innovations.

Closer to home is the application of design thinking to solve 'wicked problems' faced by libraries (Howard & Davis, 2011). Howard & Davis (2011:16) proposed a hybrid approach where design thinking is used in tandem with evidence based practice to "maximise the strengths of the two methods for designing solutions to wicked problems", reflecting the openness and agility of design thinking. This is an important point to note because it hints of the possibility of applying designing thinking in the educational context, which is already saturated with different curriculum models and pedagogies e.g. Teaching for Understanding (TfU), Understanding by Design (UbD), Inquiry-based learning and Problem-based learning, to name a few. The underlying concern that schools need to discard existing practices to embrace design thinking is thus unfounded.

DESCRIPTION OF THE SDL DESIGN TOOLKIT

The SDL Design Toolkit positions teachers as human-centred designers, foregrounding the creative and human aspect in teaching. This means that instead of starting curriculum or lesson planning from the point of view of 'what to teach', i.e. syllabus content, subject-specific skills and/or 21st century competencies, which is the intuitive starting point for teachers, this toolkit proposes a push back. It seeks to push further back the starting point for the teacher to focus on 'who are we teaching', the students themselves, to understand learners and their learning challenges, from their point of view. This toolkit thus offers a series of steps, strategies and activities that a teacher can undertake to clarify his or her understanding of students and their learning needs.

The first half of the toolkit features 3 sub-sections, namely "Empathize", "Define" and "Ideate", borrowing the terminology from design thinking. Empathize seeks for the teacher to understand the people, i.e. students for whom s/he is designing through observing, engaging and immersing. Define seeks to unpack and synthesize empathy findings into compelling needs and insights, and scope a specific and meaningful (lesson design) challenge. Ideate involves exploring a wide solution space – both a large quantity of ideas and diversity of ideas. Collectively, empathize, define and ideate guides teachers to a deeper understanding of their students and challenges faced by students.

Each sub-section features a step to be taken in the design thinking process, explaining what each step entails and how to go about completing these steps. A number of strategies and activities are surfaced for each step to offer teachers choice and afford for customization based on the teacher's comfort level. Rationale is provided for each step and proposed strategy and activity to help teachers understand why they are doing what they are doing.

After outlining what and how teachers can empathize, define and ideate, the second half of the toolkit introduces filters that allow teachers to start thinking about the SDL lesson they would like to design vis-à-vis what they understand about their students and challenges faced by students. It guides teachers through a 5-step thinking process; by the end of which they would be ready to write their lesson plans.

It is pertinent here to raise the point that the toolkit serves as a guide to support the thinking process as opposed to the planning (i.e. lesson plan writing) process. The value of this tool thus lies in it being generic enough to be applied across contexts, subjects and grade levels.

DISCUSSION & PERSONAL REFLECTIONS

The SDL Design Toolkit is not intended to disrupt existing classroom and school practices. Instead, it hopes to serve as a scaffold to support teachers' efforts to develop self-directed learners. Teachers who are already using curriculum design frameworks such as TfU and UbD can continue to do so while making use of the toolkit, which was conceptualized to bridge the gap between an idea and insight with eventual lesson planning guided by the respective frameworks. After going through the toolkit, it would be evident that after completing all the steps proposed in the toolkit, teachers would have yet to write their curriculum or lesson plan, and it is meant to be so. This is because completing the steps, strategies and activities in toolkit would only put the teachers in a position where they are ready to start writing

their plans; now that they are better equipped with understanding of their students, insights to their learning needs and problems as well as ideas on possible solutions (lesson activities or teaching approaches).

The toolkit is also not supposed to be prescriptive and teachers are free to pick and choose strategies and activities that they feel more comfortable trying out. Even though there are good reasons why the toolkit is laid out as such, teachers are free to explore how they might re-sequence the suggested activities according to their mental or logic models. Teachers are also invited to adapt or create new activities and personal strategies that reflect the spirit and philosophy of design thinking, and which they find useful in their respective contexts.

The author has personally applied design thinking to her work in contexts of product design and design of educational innovations. This practice was found to be useful during the following circumstances e.g. when one was at a loss and did not know how to start and when one was stuck and need to be un-stuck. Instead of merely sharing what design thinking entails, the author opted to put together a toolkit to demonstrate how design thinking can be tangibly applied in our day-to-day work as teachers.

References

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