CO-DESIGN FOR STUDENT SUCCESS

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Contents

An Introduction to Collaborative-Design

"Collaborative and collective governance and decision-making has been at the heart of our societal structures since the beginning."

Carla McGrath — National Centre of Indigenous Excellence

The value of learning and teaching through collaboration was established early in human cognitive development. Learning from interacting with others ensured skills and behaviours evolved with the needs of the community. 'Co-design' embraces this concept by evaluating the ever-changing perspectives of diverse stakeholders through open collaboration.

This introductory handbook defines the guiding principles of co-designing with students, their supporters[1], and other members of the community as a method to assist in addressing challenging issues in educational environments. The handbook also includes best practice recommendations based on the recent literature on co-design. These principles and strategies will be presented generically so they can be applied across a range of diverse contexts.

The method of co-design is structured to explore users' ideas and perspectives that may otherwise be untapped through traditional data collection such as surveys and questionnaires. Through the various techniques and approaches to co-design, there is flexibility for participants to pursue avenues that arise organically through collaboration.

It is our intention to equip educators with the tools and techniques to utilise 'co-design-thinking' strategies that can then be transferred to educational settings. We also hope that educators will embed co-design methods as a mechanism to promote student engagement and strengthen relationships among members of the wider school community. The education of our students is everybody's business.

What is Co-Design?

Co-design can be defined as an activity or intentional approach aimed "to combine the views, input and skills of people with many different perspectives to address a specific problem" (Bradwell and Marr 2008, p.17). Inherent in this definition is that successful co-designed outcomes must include the perspectives of a wide variety of stakeholders such as students, teachers, and community leaders.

Co-design is an approach that is particularly useful for complex problem solving and decision-making. It challenges the habit of traditional 'top-down' approaches, where leaders independently investigate problems without the input of their team or colleagues.

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[1]This handbook adopts the term 'supporters' to acknowledge and include the various carers of students including parents, guardians, siblings, family members and other primary caregivers.

Co-design advocates for 'bottom-up' problem-solving, which seeks the input of numerous stakeholders. The perspectives of participants in co-design strategies are treated equally, as co-design recognises the unique experiences of individuals that can enrich the collaboration.

Another central idea to the co-design approach is the concept of 'shared responsibility'. Simply put, this concept holds all members of the co-design team accountable for the successful implementation of co-designed strategies. Collaborative design fosters a sense of 'outcome-ownership', where participants feel invested in the success of the strategies created through their decision-making. In this way, co-design encourages and highlights shared success, empowering stakeholders and strengthening relationships.

Co-design relies on the partnership of individuals who share a common interest but hold diverse perspectives and experiences. In a school setting, for example, this may involve a team consisting of career counsellors, Year 7 pastoral care teachers and the daily organiser. In other words, colleagues with vast and unique knowledge, but with potentially little day-to-day connection. This sort of team would produce diverse strategies devised from the input of participants with varied experiences.

Collaboration is immensely beneficial in lifting morale, productivity and engagement and is also a fun way to explore knowledge creation and develop rapport among individuals who otherwise may not socialise or work together (Carr and Walton 2013). It enables individuals to get to know each other, appreciate and understand each other's roles within the workplace/school and identify shared common interests in other areas of their lives. This interaction is not only conducive to a collegial environment but also a human-centred one by encouraging success through the development of productive relationships. It takes into consideration the many experiences, interests and approaches of individuals and acknowledges that these dynamics are fundamental to successful group work.

Principles of Co-Design

1. Co-design involves the perspectives of diverse participants who hold mutual interest in the production of a successful outcome. People who are affected by changes should be a part of the decision-making process.
2. There should be no prior decision-making before the co-design process. In order to ensure the co-design is authentically grounded in everyone's perspectives, there needs to be freedom to explore new ideas and solutions. Participants may bring technical knowledge, or their own experiences, but should stay open minded.
3. Everyone is treated equally in the co-design process. People may contribute different ideas, but everyone has a unique and valuable contribution to make.
4. Co-design is a shared responsibility. Each co-design participant should be involved in determining the trajectory of the exercise as well as taking responsibility for successes and any subsequent challenges when they arise.
5. Co-design not only solves problems; it strengthens our relationships. By working with everyone, we gain mutual respect and trust that can invigorate our communities.

Co-Designing with Students

In the past, a typical classroom was focussed on the teacher at the front-and-centre (Elmore, 1996). Students were considered empty vessels with teachers deciding what knowledge should be imparted to the next generation. Students and teachers began questioning the effectiveness of teacher- and fact-centred design. Research later showed us what teachers knew all along; that collaborative learning styles achieved better overall student outcomes (Gillies 2003; Bruffee 1995).

In the 1970s, schools around Australia embraced the new approach (Hennessey and Dionigi 2013) which saw small groups of students with individual roles working together, with a roving teacher facilitating learning within a flexible classroom environment. In this way, teachers design every day. From lesson planning and the formulation of learning activities, teachers are expected to create engaging, meaningful content. Our expectations are that students, too, engage with the content and draw meaning from it. Teachers can use the strategies of co-design to both devise learning activities in partnership with students and to explore curriculum-based content.

The difference between co-design and collaborative learning lies in its structure and the shared decision-making power of its participants. Slay and Stephens (2013) placed co-design activities among those that require the highest levels of participation, labelling them "doing with" activities. Where collaborative learning involves group work, the approaches are broad and not readily defined, usually resulting in more teacher intervention and, at times, delivery. Co-design on the other hand, outlines steps which are borrowed from the field of design-led innovation. It provides a framework by incorporating targeted, specific questions based on the nuances of student experiences in the design-making process and knowledge creation. This handbook has synthesised the approaches for idea-generation or innovation from the design field to create a school-specific approach — WE-DID-IT.

In the classroom, co-design can promote the inclusion of diverse student perspectives with varied levels of knowledge and experience and the development of their critical thinking skills. Students can see the learning process and become aware of how their ideas come to fruition. The importance of meta-cognition is often mentioned in Australian curriculum frameworks (e.g., AusVELS, NESA, SCSA, QCAA). Co-design aligns with those standards as students recognise the learning process and their involvement in it, ultimately building sound thinking and decision-making skills as a result.

Spectrum of Participation; adapted from Slay and Stephens (2013:4)

Least Participation   *Most Participation*

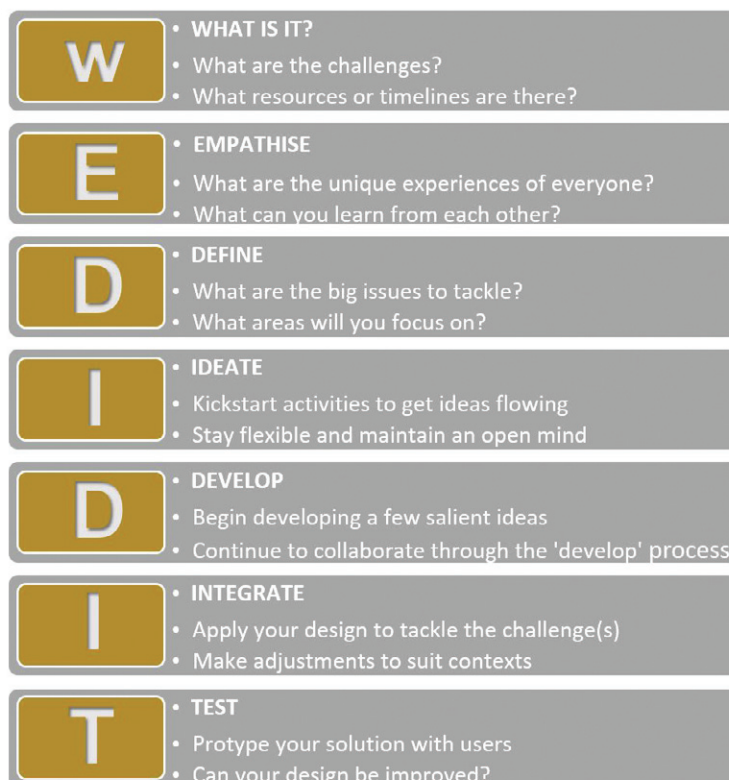| "Doing to" Activities	"Doing for" Activities	"Doing with" Activities
Informing Educating	Engaging Consulting	Co-designing Co-producing

The WE-DID-IT Approach

Many aspects within education systems across Australia can be investigated through a social process of including students, supporters, and local community members with educators. Challenges such as supporting student success, fostering inclusive and diverse communities and ensuring that all students have an opportunity to learn are issues that everyone can help solve. In fact, it is through talking and listening to one another's experiences and perspectives that we can begin to understand the nuances of problems and provide solutions that will suit everyone. However, to achieve a collaborative solution, we first need to identify the mechanisms and strategies that can help support positive and successful teamwork. The WE-DID-IT approach can assist in this endeavour. In curriculum formulation, each problem such as "my students aren't interested in algebra" or "the varying abilities of my students makes group work hard" is an opportunity to apply the co-design approach. It is intended that this will alter teachers' roles from deliverers to facilitators of student learning.

All steps in the WE-DID-IT approach invite regular collaboration among the participants of a co-design activity. The approach has been designed as a reference tool for students and staff alike to ensure that collaborative activities remain focused on the five principles of co-design listed above. WE-DID-IT encourages the reflection and discussion of ideas. It also seeks to boost collaboration by ensuring all participants are included equally and their input is valued by the team. Participants are encouraged to think about, and evaluate, their contributions to the activity by assessing their own ideas along with those of their team, ultimately identifying their own thinking-processes and building key decision-making and problem-solving skills.

The WE-DID-IT Approach (Dollinger and D'Angelo 2020)

W — WHAT IS IT?
- What are the challenges?
- What resources or timelines are there?

E — EMPATHISE
- What are the unique experiences of everyone?
- What can you learn from each other?

D — DEFINE
- What are the big issues to tackle?
- What areas will you focus on?

I — IDEATE
- Kickstart activities to get ideas flowing
- Stay flexible and maintain an open mind

D — DEVELOP
- Begin developing a few salient ideas
- Continue to collaborate through the 'develop' process

I — INTEGRATE
- Apply your design to tackle the challenge(s)
- Make adjustments to suit contexts

T — TEST
- Protype your solution with users
- Can your design be improved?

Eight Strategies for Co-Design

As pre-service teachers, we were trained to craft our pedagogical philosophy around the concept of 'student-centeredness'. As in-service teachers, our lesson plans and the learning activities in them are designed to embrace student-lead learning. In this section, we will provide an overview of eight strategies for trialling co-design approaches in your schools or classrooms. Not all strategies work in all contexts; it's up to you to decide which ones work for you. Depending on what you are trying to get feedback on (i.e. a new idea or how to improve an existing program/service) you can decide whether you want to co-design with students, their supporters, community members and other stakeholders.

Every day, teachers use their judgement to select the key knowledge and skills they believe need to be passed on to their students. Co-design empowers students by involving them in the co-creation of their learning and by including their personal perspectives. Beyond the curriculum, co-design approaches can assist schools in tackling problems such as fund-raising, timetabling and issues around school pick-up and drop-off. The method of collecting information to answer these questions (i.e. the 'Define' step in WE-DID-IT) can take several forms depending on the participants' ages, logistical concerns and curriculum frameworks.

1. Crowdsourcing

Crowdsourcing is exactly what it sounds like - sourcing ideas and/or suggestions from a large network (i.e. crowd). Data from crowdsourcing can be collected online, through a website, or during an in-person activity. For example, a community may be brainstorming ideas on how to raise money for a local charity. You could ask participants to present their ideas to the other members in five-minute segments at the next meeting. Alternatively, you could allow anonymous submissions online. The ideas that are generated from everyone can then be collated to present a solution to the challenge.

Many people think that in order to contribute ideas through crowdsourcing someone must be an expert in that area. However, research has shown that 'novices' (non-experts) can also contribute valuable ideas and suggestions (Lubicz-Nawrocka 2018; Bovill et al. 2009). Sometimes individuals with specific knowledge of a system or problem can struggle to innovate or to form unique ideas because they may be influenced by what didn't work in the past. For technical or systems problems, it may also be useful to pair experts with novices (i.e. teachers with community members) to form crowdsourcing teams as both groups can add a different perspective towards an idea.

2. User-Testing

The user-testing approach asks one or more potential participants (e.g., students) to test out ideas while offering feedback as they go. User-testing is especially effective in recognising issues concerning student comprehension of texts and instructions. For example, if you write a test for students, how do you know your instructions are understood by all students, including English as a Second Language (ESL) students? You could ask one student to read the test aloud, as you sit next to them, and 'think aloud' about anything they don't understand. This style of user-testing is known as a 'cognitive interview' and is also a popular method for people who are designing surveys or interview questions (Garcia 2011).

User-testing is a great tool to test new initiatives or resources and predict problems before they occur. For example, maybe you've drawn a map of your school for new students but aren't sure if it's clear. You can ask participants to use the map, and in that way, learn what areas of the map need to be improved. You can always ask the participants of user-testing to also offer feedback that might make your ideas even better.

3. Storyboarding

When we think of data collection from participants, we usually think about data we can read (i.e. survey responses) or data we can hear (i.e. interview recordings). However, consideration of the visual data is particularly important for the inclusion of individuals preferring to communicate through images or drawings. Additionally, more nuanced data

may be obtained by removing language barriers. Storyboarding is a technique that allows participants to draw on their experiences to present ideas. Storyboards often resemble comics, as they usually have one image per square or panel, sometimes accompanied by text. For example, you can use a storyboard to ask a student to depict what the first day of school felt like to them. You may find that the data you collect through visual images can often be richer than data you would collect from interviews. Data that include drawings can often more closely detail emotions associated with an experience, topic or event.

Storyboarding can not only be used for retelling past experiences, but also imagining new experiences. You could ask participants what their ideal communication with teachers would like over the course of year, or you could ask teachers to storyboard their ideal professional development sessions. If you already have an idea of a linear process, such as an agenda of an event, you can also ask participants to storyboard what they imagine their emotions and/or learning outcomes might be as a result of that process.

4. Role-Playing

Role-playing can be an effective means to understand participants' perceptions of ideas, situations or people. Role-playing can illustrate aspects of an individual's experiences in ways most other data collecting strategies cannot as it involves recollection rather than active-thinking or having to deeply analyse it themselves first. For example, role-plays can be used with students to help them story tell difficult events or situations they've been in. Important to note here is that role plays should not be framed as retelling an actual event, but rather, acting out a hypothetical situation. In this way, the person involved in the role playing doesn't feel like their own experiences are being exposed to others.

Take, for instance, a new student who had had difficulties with a teacher at their previous school and was resisting forming a relationship with their new teacher. An approach would be to ask a group of students, including the one in question, to role-play 'bad' teachers. You might find that the student chooses to depict a scenario where a teacher made the student feel bad for not learning as quickly as other students. This information may have never come out in a survey or an interview because the student hadn't yet processed the experience or didn't feel ready to share the story in that way. Like storyboarding, role-plays can also depict ideal scenarios and, as such, students could be asked to role-play 'good teachers'.

5. Shadowing

Sometimes the best way to understand another person's experience is to simply shadow them. In shadowing activities, participants agree to pair themselves and follow each other through an activity or experience. To illustrate,

a librarian could shadow a student to observe what it's like for a student to locate a resource in the library. Much like the 'cognitive interview' aspect discussed with user-testing, shadowing can be even more effective if the participant is willing to think aloud and verbalise their ideas as they go about their activity.

For shadowing to be an authentic representation of an individual's experience, it's important that whomever is serving as the shadow has very limited interaction with the participant. Shadowing, depending on the situation, can also be conducted with groups so that multiple people can view the experience of the participant in real time, but often, the bigger the group the less authenticity is achieved. Leaders or managers may find that having staff or students shadow them can also be an effective mechanism to communicate their unique workloads. It's often easy to criticise others when we don't really understand the pressures they face.

6. Flash Thinking Challenges

'Flash thinking' challenges change the temporal aspect of collecting data. Rather than allocating considerable amounts of time to deeply consider an idea or solution, flash thinking asks participants to quickly express whatever is at the front of their mind. Sometimes, by asking participants right away what they think, you'll be able to understand their most critical priorities.

For example, you could ask students to list all the people they could go to for advice on what to do after they finish secondary school. The people listed first may be the ones they would most likely go to for help, but that doesn't necessarily mean they are the most qualified to counsel them. If you had given them more time, they might have changed their first answer to 'career advisors' but that may not be who they would have actually gone to first. Flash thinking challenges are also good to get an idea of participants' awareness of services or programs. By giving participants only one minute to list all the services or events available at the school for supporters, you might find that major services have been left off the list, indicating a need to better promote these services.

7. Mentoring or Critical Friends

The mentoring or 'critical friends' approach fosters the long-term adoption of co-design. Engaged supporters could for instance be paired with teachers at a school and meet once a month with one another to mentor each other about what it's like to be a supporter/teacher in the community. Mentoring in this way therefore is balanced, with each group benefiting from understanding a new perspective. Developing relationships with various stakeholders can also be useful in short-term instances if you need to obtain quick feedback from a supporter/teacher on an idea or new intervention strategy.

Growing in popularity is also the idea of critical friends (Storey and Richard 2013). It stems from the idea that going public with issues, challenges, or ideas can often be confronting. Therefore, finding someone who is slightly outside of your intended audience (e.g., a teacher from a different district) to bounce ideas or concerns off can be useful. However, increasingly, critical friends can also extend to include students. The 'students-as-partners' literature often describes situations where students can work with teachers as consultants to help teachers develop and improve their pedagogy or curriculum. In these situations, it's often best for a student to work with someone other than their own teacher, as that may limit the authenticity of advice or suggestions. One university in Sweden involved students in the co-creation of an undergraduate course which resulted in more active student participation (Bengtson et al. 2017).

8. Lifeboat Exercises

Our values and preferences are often subjective as they are based on our experiences, so you're likely to think any new idea your team generates is a good one. It is important to remain reflective and consider any negative aspects to your idea. Perhaps the idea itself is well-founded but disseminating it has not been successful. That's where 'lifeboat exercises' can be useful as they encourage participants to advocate for their ideas. The lifeboat exercise places participants in a situation where there is one place left on a lifeboat. Your place on the lifeboat is determined by a panel of judges who listen to each group's idea and why they think their idea is best.

The objective of lifeboat exercises is to help managers, leaders, or people with new ideas or programs, think about what the value of their initiative is to their future users/students. They can also be used in situations where multiple groups of people have an idea for a new program, but there is only enough funding or resourcing for one. Each group can pitch their idea and the audience or (student) panel can decide which one has the most value.

Co-Designing for Student Success

Success with adopting any new learning strategy in the classroom is reliant on four factors (Hennessy and Dionigi 2013):

1. the teacher's level of understanding
2. the age of the students
3. the behaviour of the students and classroom management practices
4. teacher planning and control of lesson planning.

To include co-design as a learning activity, tasks more suited to collaborative activities need to be selected by keeping in mind the practicalities and the context of the classroom (Jacob 1999). The co-design approach recognises that although students working together can invite variety and foster peer tutoring and partnerships, students and teachers can also view group work as potentially creating a lack of on-task learning. Indeed, there may be resistance from the school community in adopting new approaches to learning due to pedagogical philosophies (e.g., Senechal 2011) and the dynamics of the school environment. Student supporters may also be sceptical of the efficacy of group work with a preference for rote learning so co-design may only be implemented occasionally as a form of structured group work. Co-design strategies need only be a tool in a teacher's toolkit, and we leave this up to your professional knowledge, acknowledging that contexts and resources differ. The benefits of collaborative work are well understood, so it is hoped that the WE-DID-IT structure will assist students and teachers in mitigating some of the perceived challenges.

Student success through the co-design process can be measured in several ways to account for the many and varied learning abilities of students. For some students, involvement in co-designing or collaboration initially may seem daunting as they prefer a more self-determined learning environment, so their active participation in a co-design activity should be celebrated. Conversely, students who are likely to lead groups and overlook others would learn true leadership skills as WE-DID-IT values inclusivity and peer input. Students who are unlikely to contribute in group work become engaged in the process as they realise that their contribution is being respected and included. These are some of the instances where students may step outside their cognitive comfort zones as they expand on their usual learning habits; these moments should be celebrated.

There are many possible outcomes from using co-design. In contrast to traditional purposeful thought which is habitual and automated (e.g., solving a puzzle that has only one solution), co-design is a more powerful, comprehensive and creative form of purposeful thinking. Co-design can be particularly useful when applied to interpret or resolve complex, confusing, or unanticipated situations whenever and however they occur. Co-design also allocates time for the reflection of learning and thinking, a skill that can be honed and applied to many aspects of students' lives and assist them in their problem solving and decision making. Ultimately, co-design approaches can not only strengthen relationships between teachers and students but instil problem solving and innovation skills in our next generation of citizens.

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