RSA

PUPIL DESIGN AWARDS 2021–22

Final evaluation report

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Acknowledgements

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About us

We are the RSA. The royal society for arts, manufactures and commerce. We're committed to a future that works for everyone. A future where we can all participate in its creation.

The RSA has been at the forefront of significant social impact for over 250 years. Our proven change process, rigorous research, innovative ideas platforms and diverse global community of over 30,000 problem solvers, deliver solutions for lasting change.

We invite you to be part of this change. Join our community. Together, we'll unite people and ideas to resolve the challenges of our time.

Find out more at thersa.org

We define our ambitions as:

Our vision

A world where everyone is able to participate in creating a better future.

Our purpose

Uniting people and ideas to resolve the challenges of our time.

We are

A global community of proactive problem solvers.

About our partner

Founded in 1971, The Comino Foundation's vision is of a Britain in which people are equipped and motivated to live fulfilling and purposeful lives and, therefore, contribute to sustaining a prosperous and responsible society. Established during Dimitri Comino's celebrated role as an RSA Fellow, the RSA and the Comino Foundation have an extensive shared history. Together, we have collaborated on a number of ventures driven by a desire to ensure that people are able to live fulfilling and purposeful lives, ones where they are encouraged to develop their individual and collective capabilities for the benefit of society.

COMINO FOUNDATION

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Executive summary

The RSA Pupil Design Awards (PDAs) is a free, national, challenge-based project for secondary schools, established in 2014 by the RSA and the Comino Foundation. This evaluation was undertaken to understand the impact of the RSA's PDAs around the following outcomes:

1. Pupils' **creative self-efficacy**.
2. Pupils' **awareness of real-world issues** facing them and their communities.
3. Pupils' **design capabilities**.

And to understand what factors are **critical to support teachers** to complete the project.

To test our theory of change[1] and understand how to best achieve our outcomes and deliver impact, we developed an evaluation framework of activity that included collecting data through surveys completed by pupils, interviews and focus groups with both pupils and teachers, and reports from mentor workshops in schools. This report summarises our process and findings.

The evaluation produced the following findings:

Participation

- **Pupils' submissions to the PDAs are increasing as overall participation rates continue to remain broadly the same** year on year.
- **The number of pupils working in teams is decreasing on average** year on year.
- Most schools are delivering the Awards in **timetabled lessons**, and through **design subjects**.

Creative self-efficacy

- Participating pupils **generally consider themselves to have high levels of creative self-efficacy** even before entering the PDAs.
- The **PDAs provide new opportunities for pupils to deploy and develop their creative thinking and problem solving skills,** enabled by experimentation and discussion during the ideation stage, as well as through primary research.

Design capabilities

- Pupils we spoke to expressed a strong sense of pride in having developed their design capabilities, such as **collaboration, research, critical thinking, ideation and communication**, enabled by a meaningful engagement with local communities and with the design thinking resources provided by the RSA, and through working in teams.

1 For more information, see: www.thinknpc.org/resource-hub/ten-steps/.

Awareness of real-world issues

- Pupils we spoke to demonstrated an **increased understanding of social challenges in their local community and beyond**, which was confirmed by the interviewed teachers. This was enabled through meaningful engagement with local communities, time for classroom discussion, and the relevance of the briefs set by the RSA.

Factors critical to supporting teachers

- The majority of submitting schools **attended teacher training and received mentor visits,** and that **most teachers are adapting the suggested scheme of work and activities for their own classroom contexts**.
- The main enabling factors for faithful implementation of the PDAs were **previous experience of the Awards, resources provided by the RSA, alignment with the exam boards, subject specialism and whole-school support** while the main challenges were **time constraints** and **budget constraints**.

Recommendations for the RSA Pupil Design Awards team for future delivery

We identify the following recommendations for the RSA in supporting teachers with implementing the PDAs with the aim of increasing our reach, nurturing pupils' design capabilities, creative self-efficacy and awareness of social challenges.

- Organise an event at the start of the year (virtual or in-person) to launch the competition and inspire pupils to become changemakers.
- Develop a series of events throughout the year (virtual and/or in person) to encourage engagement, deepen knowledge and raise aspirations.
- Continue to provide additional resources and idea-generating techniques related to the briefs.
- Facilitate connections between schools, local organisations and individuals, such as Fellows or partners, to provide more place-based and brief-related information, particularly for schools who might lack these networks.
- Provide enhanced feedback to participants, particularly to those who were not successful.
- Target schools less likely to engage in creative opportunities such as the PDAs.

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Introduction

The RSA Pupil Design Awards is a free, national, challenge-based project for secondary schools, established in 2014 by the RSA and the Comino Foundation. It builds on the almost 100 year history of the RSA's Student Design Awards (SDAs), a global curriculum and competition for young designers that has been running since 1924. The PDAs' vision is one in which schools support young people to develop their creative self-efficacy (their belief in their ability to produce creative outcomes) and the capabilities to become changemakers within their own communities.

Working towards this vision, the PDAs aims to empower pupils to use design thinking skills to tackle real challenges present in their schools, their communities and across the planet. We do this by:

- **Broadening teachers' and pupils' understanding** of how design for social innovation, as a methodology and a process, can be applied and understood through challenging briefs and engaging resources.
- Introducing **design thinking** to teachers and pupils through interactive workshops delivered in collaboration with design education experts.
- **Connecting schools to their local communities** and enabling pupils to design solutions to local and global contemporary challenges.
- **Convening networks of educators, designers, innovators, changemakers and thought leaders**, and supporting teachers and school leaders to understand how design thinking principles can enhance their curriculum beyond the PDAs.

The Awards are categorised into three age groups: years 7 and 8, years 9 and 10, and year 12. They provide an annual structure complementing the academic calendar, with a flexible, suggested, seven-week scheme of work for teachers.[2]

Briefs are designed to inspire participants to tackle pressing social issues with creativity and confidence. This year, pupils were tackling one of three briefs:

Food for thought
How might we rethink our current food system to design out waste?

Learning to belong
How might we ensure that schools become places of belonging for all pupils?

Green streets
How might we restore nature to urban spaces to ensure that people and the planet thrive together?

2 Due to the cancellations of exams during the Covid-19 pandemic in the academic years 2019-20 and 2020-21, the year 12 age category was widened to include year 11s and 13s.

Pupils are supported through a network of mentors, all former Student Design Awards winners, who provide guidance and support to young people - enhancing their responses to the briefs, as well as sharing insights from their emerging careers in design, and from working on their own design projects.[3]

Teachers are supported through teacher training sessions, resources, a suggested seven-week scheme of work, and mentor visits.

The annual PDAs cycle closes with a final celebration that brings together professional designers and educators to engage with students' work, deliver inspiring talks, and celebrate the world of design with students.

Figure 1: Annual timeline of engagement for teachers

3 For more information see: www.thersa.org/student-design-awards/winners.

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Methodology

Our evaluation research was guided by the following research questions:

1. Does the Pupil Design Awards help support growth in creative self-efficacy amongst young people, and, if so, how?
2. Does the Pupil Design Awards help to improve the design capabilities of pupils?
3. Does the Pupil Design Awards help develop pupils' awareness of real-world issues facing them and their communities, and, if so, how?
4. What factors are critical to support teachers to complete the project and make it a success?

Our theory of change

Our theory of change (see Figure 2) was initially developed internally through a series of team-wide collaborative sessions, working together to distil previous project plans, resources, proposals, and data collected through monitoring.

We defined our ultimate aims, listed our key activities, mechanisms of change, and outcomes, and tested our assumptions with partners and participants. We asked teachers if the outcomes resonated with their motivations for participating and walked them through the timeline and processes for data collection.

Figure 2: The theory of change of the Pupil Design Awards

AIM	CONTEXTUAL FACTORS	ACTIVITIES	MECHANISMS OF CHANGE	OUTPUTS	OUTCOMES
All young people develop creative self-efficacy through engaging with real-world problems and leave school with knowledge and skills which enable them to flourish in their personal lives and contribute to the flourishing of their communities.	Pupils and schools have adequate access to the internet and materials.	Recruit schools targeting those with higher proportion of FSM-eligible pupils.	Pupils and teachers engage with all phases of the design thinking process as suggested in resources.	Cohort of registered schools.	Improved design capability among pupils.
	Teachers have a particular interest in one of the briefs or social design more generally.	Write three briefs on contemporary social issues with supporting information and further resources - Briefs are co-created with pupils, teachers, mentors and other partners.	Teachers read the resources, attend the training and book a mentor visit.	Pupil brief pack and teacher resource pack.	Increased creative self-efficacy among pupils.
	Teachers have a par School/SLT promotes curriculum that is inclusive, prosocial, encourages creativity and engagement with local community ticular interest in one of the briefs or social design more generally.	Produce resources and suggested scheme of work for pupils and teachers to support with delivering design thinking activities in the classroom.	Pupils experience high quality engagement with design for social change through mentor scheme and judging process.	Three briefs and further resources.	Pupils' greater awareness of real-world issues facing them and their communities.
		Hold teacher training sessions to introduce design thinking activities to teachers and prepare them for classroom delivery.	Pupils experience rich and meaningful engagement with their communities and the issues facing them through the briefs.	Teacher training session recordings.	
		Recruit mentors from SDA alumni – early career professional designers. Mentors provide bespoke feedback on pupils' work before submission.	Teachers use design thinking to support pupils to develop associated skills and capabilities such as collaboration, research, ideation, critical thinking, communication.	Mentor session reports.	
		Curate judging panel from across design, education, academia and third sector - diverse in professional and personal experience.	Design thinking is introduced as a mechanism for social change across school curriculum.	Pupils' final proposals.	
		Hold two-stage judging panel: shortlisting and pupil presentations.	Support for and communication with teachers and mentors is maintained throughout the year.		
		Provide communication and support for teachers throughout.			

To test our theory of change and understand how to best achieve our outcomes and deliver impact, we developed an evaluation framework of activity that included collecting data through surveys completed by pupils, interviews and focus groups with both pupils and teachers, and reports from mentor workshops in schools which have been written up into this report.

We hope that this will not only help us improve our understanding of the efficacy of the project but will also help to inform future developments and growth, leading to an improved theory of change and enhanced experience for partners and beneficiaries.

To this end, we will continue to embed evaluation into the delivery of the PDAs, designing and carrying out research and evaluation work to support, improve and understand the impact of the project.

In making the arguments within this evaluation and our recommendations, we draw upon data collected as outlined in our framework.

Figure 3: Evaluation framework

Method	Purpose	Data collected
Pupil survey The questionnaire was a hybrid of two validated measures: • Writing self-efficacy measure questions on ideation.[4] • General self-efficacy scale questions on problem solving.[5]	• To understand participating **pupils' creative self-efficacy** before the PDAs. • To assess **pupils' creative self-efficacy** as a result of participating in the PDAs.	Questionnaires completed by pupils anonymously and delivered by teachers at the start and end of the competition in paper form.[6] • **92 responses were received at baseline.** • **28 responses were received at endline.**
Mentor observation reports	• To understand **how teachers are delivering the project in the classroom**, and to what extent they are using the materials and resources as outlined in the teacher resource pack. • To understand **how teachers are implementing the Pupil Design Awards** – either as part of the design curriculum or as an extra-curricular activity.	Mentor observations forms were completed at school visits for the mentor sessions. • **6 mentor forms were collected.**

4 Bruning, R, Dempsey, M, Kauffman, DF, McKim, C, Zumbrunn, S (2013). Examining dimensions of self-efficacy for writing. Journal of Educational Psychology, Vol 105(1), 25-38. Available at: psycnet.apa.org/buy/2012-21983-001

5 Schwarzer, R and Jerusalem, M (1995). General Self-Efficacy Scale (GSE). In Weinman, J, Wright, S and Johnston, M. Measures in health psychology: A user's portfolio. Causal and control beliefs (pp35-37). Windsor, UK: NFER-NELSON. Available at: www.userpage.fu-berlin.de/health/engscal.htm

6 We concluded it was best to base pupils' creative self-efficacy assessment of progress on focus groups and teacher's interviews due to the low unpaired size of the endline database.

Teacher survey	• To understand teachers' faithful implementation of the PDAs in terms of: – Completion. – Mentor visits. – Teacher training session. • To understand teachers' perception of pupils' development of design capabilities. • To understand teachers' perception of pupils' meaningful engagement with the local community.	Teachers' questionnaires were completed online after the PDAs' submission deadline. • **12 responses were received from submitting schools.** • **Eight responses were received from non-submitting schools.**
Teacher interviews	• To understand the enablers and challenges involved in **faithfully implementing the project and what factors are critical to support teachers to do so.** • To understand the benefits of pupils as a result of participating in the PDAs, from a teacher's perspective, in terms of: – Design capability. – Creative self-efficacy. – Awareness of real-world issues.	We delivered a series of 30-45 minute online semi-structured interviews after the PDAs' submission deadline. We interviewed: • Four teachers from submitting schools. • Two teachers from non-submitting schools.
Pupil focus groups	• To understand how pupils have **engaged with their local community** through undertaking the Pupil Design Awards and what the drivers and barriers are to doing this effectively. • To understand the benefits of pupils as a result of participating in the PDAs, from a pupil's perspective, in terms of: – Design capability. – Creative self-efficacy. – Awareness of real-world issues.	We delivered two 45-minute online semi-structured focus groups. **We talked to:** • Seven pupils from one submitting school. • Five pupils from one submitting school.

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Evaluation findings

Scale and reach of the programme

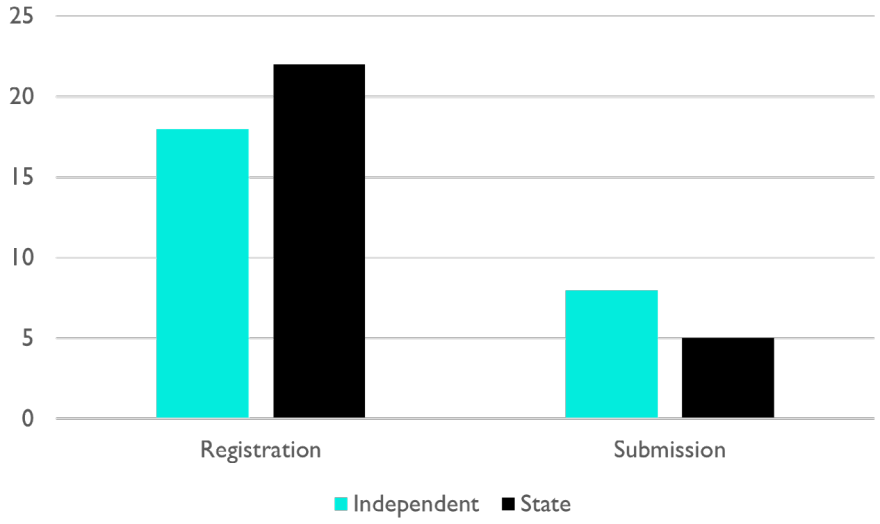
This year, 46 schools registered to take part in the Awards, with 13 schools submitting. From those 13 schools, there were 101 submissions, from a total of 173 pupils. **Submission numbers are increasing as overall participation rates continue to remain the same** (see Figure 4).

Figure 4: Number of schools and pupils at registration and submission 2018-22

Category	2018-19	2019-20	2020-21	2021-22
Schools registering	29	50	48	49
Schools completing	18	6	15	13
Submissions	68	25	78	95
Pupils in submissions	221	54	167	173
Total pupils reached	c1000+	c1600	c1600	c1600

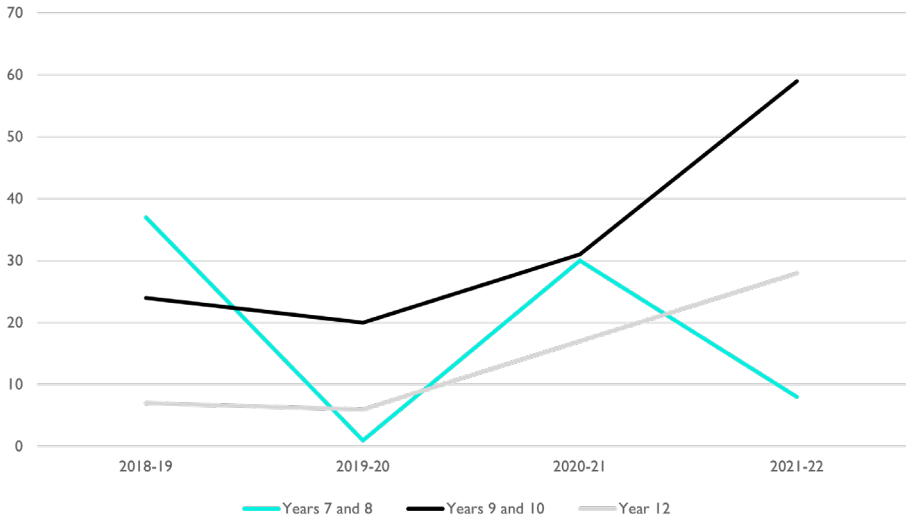
While we've seen a larger number of state schools at registration, a higher proportion of schools at submissions stage are independent schools (see Figure 5). Out of those schools that did not submit and responded to our survey, four teachers stopped delivering in autumn term one, and four in spring term one with Covid-19 implications as the most cited reason.

Figure 5: Number of schools at registration and submission by type 2022



The average number of pupils per submission has decreased from 3.25 in 2018-19 to 1.82 in 2022-23, suggesting that, across all age groups, the number of individual submissions is increasing, causing average team sizes to decrease. This may be to do with the distribution of submissions by age category (see Figure 6); younger pupils are more likely to work in teams than older pupils, and the number of submissions from younger pupils has decreased significantly. This may be to do with the effects of disruption to younger pupils' schooling as a result of the pandemic.

Figure 6: Submissions by age group 2018-22



Outcomes for pupils

Creative self-efficacy among pupils

From speaking to pupils, we heard **a strong sense of pride in having improved their ability to think creatively over alternatives** for their proposals as they worked through the PDAs. '**Creativity' and 'problem solving' were words repeatedly associated with the Awards by pupils.** While some felt challenged by the problems presented, many expressed a sense of confidence at the end of the project, such as one year 10 pupil, in 'thinking outside the box'.

> *"I [usually] like to stick to an idea, but I was able to look at different things". Year 10 pupil*

> *"When they give us the briefs, they have their problems and it's about being creative with your solutions and finding many different solutions towards one problem rather than focusing on a specific one". Year 10 pupil*

This was widely supported by the teachers interviewed, though some referred to older pupils being more challenged when thinking creatively:

> *"As children get older…they tend to be almost too reserved and they're so worried about getting it wrong that [the ability to be creative] tends to slightly stilt". Year 12 teacher*

While participating pupils have generally presented high creative self-efficacy, even before entering the Awards (see box 1), **the PDAs has provided new opportunities for pupils to deploy and develop their creative thinking and problem solving skills.**

Enablers

1 Using experimentation techniques and having a range of resources to draw from at the ideation stage, preceded by discussions on the topic, is key to sparking creative thinking.

Ideation can often be a challenge to pupils, particularly at the start of the Awards – some lacked inspiration or felt challenged by the novelty of the exercise of thinking creatively about the problems proposed. Others tended to avoid a risk-taking approach when generating ideas, or did not have access to resources or facilities, such as tools and materials, that might help to generate ideas. Whether through brainstorming peer conversation or creating mind maps, these activities supported pupils' development of creative self-efficacy through the PDAs, and the RSA could suggest or signpost more techniques and resources.

> *"We invest in encouraging them to think as broadly as they possibly can in the first place. We work through lots and lots of divergent thinking in terms of ideas from self, ideas from discussion, ideas from research, and then we work on processes of consensus that are either met through discussion and exploring the ideas just in groups, or by whittling down their ideas using research rationale directly". Year 12 teacher*

2 Primary research was referred to by pupils as an enabler for generating new ideas and exploring solutions to improve their final proposal.

By testing out new ideas with the local community, pupils expressed a growth in confidence towards the end result of the product, grounding it in users' needs.

> *"I realised how good it was to get [the head of catering's] input, because it really helped our work". Year 10 pupil*

> *"[By conducting research in the community] you can expand and develop your ideas". Year 10 pupil*

Pupils consistently referred to the importance of reflecting on the community's feedback before considering alternatives, generating new ideas and refining their proposal. Whereas most pupils expressed feeling confident over conducting the research, some reported feeling slightly anxious over approaching members of the community as it was their first experience. Teachers explained that planning in advance to support the students is essential, for example through developing questionnaires, interview guides and contacting stakeholders in the school and/or local community.

Box 1: Pupil survey – creative self-efficacy

In September 2021 we conducted a survey to understand how pupils perceive their ability of problem solving and ideation on a Likert scale, ranging from 'I'm sure I can't do it' to 'I'm very sure I can do it'. We received 92 responses, totalling 53 percent of submitting pupils. The total score of the hybrid scale ranges between 5 and 35, with a higher score indicating more creative self-efficacy. We found an average scale score of the pupils who participated in the survey of 27.[7] This indicates that **participating pupils generally consider themselves mostly being able to problem solve and ideate before entering the PDAs**.

Figure 7: Creative self-efficacy survey, pupils responses before participating in the PDAs (%)

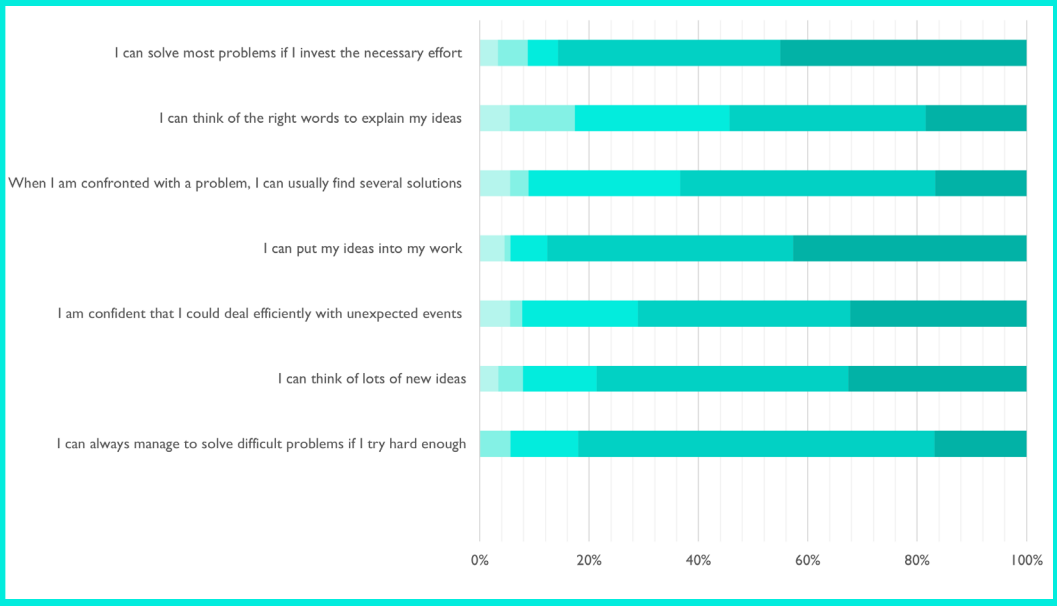
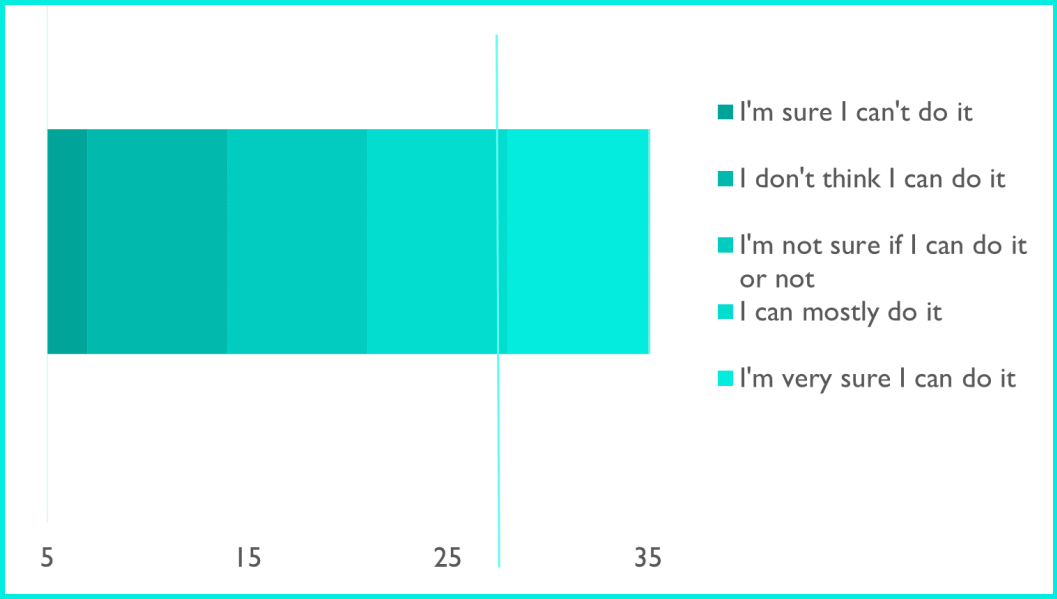


Figure 8: Average creative self-efficacy scale score



7 The questionnaire was internally consistent ($\alpha<0.70$) with a Cronbach's alpha of 0.82.

Design capability

In focus groups, pupils expressed a strong sense of pride in having developed their proposals and feeling more confident in tackling problems. This was attributed to a development in design thinking skills, and their knowledge to understand what steps are required to approach a design problem.

> *"I think it has helped me get a greater understanding of what it is like to find solutions and what is needed to do that". Year 10 pupil*

These skills **included collaboration, research, critical thinking, ideation and communication**, with the latter two being some of the most challenging. Progress was echoed in our survey where **all teachers (11) reported improvements in pupils' design capabilities as a result of completing their proposal(s).**

Enablers

1 Engagement with the community was referred to as a key aspect in pupils' development of design capabilities by teachers and pupils alike.

Teachers explained that learning through engagement with local communities not only sparked further interest and engagement with design thinking, but also encouraged a sense of motivation alongside agency. While some schools were equipped and able to invite guest speakers and/or visit external organisations, others encouraged pupils to engage with staff members of the school community and/or family members, allowing pupils to communicate their ideas to others, engage in critical thinking to reflect on their prototypes, and seek feedback to refine their ideas.

"I think [engaging with the community] was helpful in showing us that it was important to identify issues that may occur to improve the project we were making". Year 10 pupil

"Having that conversation of equals or having somebody [take] time out of their working day to discuss the nuance of a particular idea they've come up with… deepens application, and there's a great sense of pride, and just generally aspiration in where they're going to take an idea to". Year 12 teacher

Consistent engagement with the community throughout the delivery of the programme was referred to by some of the teachers as key to keeping up the momentum, and keeping pupils' level of interest high. This was supported by the pupils, who spoke about the importance of external events to keep them motivated, including the PDAs ceremony, and suggested that further, similar opportunities should be embedded in the PDAs.

2 The design thinking process, as laid out in the teacher resource pack, was referred to by many of the pupils as a crucial aspect to the development of their proposal and a defining aspect of the development of students' design capabilities.

As noted by one of our mentors, the process was sometimes followed linearly. However, pupils who acknowledged the development of their design thinking skills considered each phase an important step to follow. Many referred to the ideation phase as highly challenging and intimidating, but as they worked through researching, prototyping and refining their

product, they felt more confident and able to propose their final idea. Pupils highlighted following the design thinking process in a non-linear way as key to the final stages.

> *"[The design thinking process was] very helpful because it reminds you that it's not just thinking of a product and doing it, but also evolving it". Year 10 pupil*

> *"It was useful because while it gave us structure it also helped us not focus on just one area". Year 10 pupil*

Also, while some schools offered pupils opportunities for implementing their final ideas after the Awards process, this was not offered everywhere. Yet in many cases, pupils' awareness of working towards proposing a tangible solution to a relevant problem nurtured a drive for engagement, developing problem solving and critical thinking skills as part of the design thinking process.

> *"We're not just asking [pupils] to design something for the sake of it, we're asking [pupils] to actually bring it to life". Year 12 teacher*

3 **Many of the pupils shared an enthusiasm for working in teams.** They emphasised the support they received from their peers when working through each phase, both in terms of understanding concepts, sharing ideas, tackling challenges and preparing resources.

> *"At the beginning we all had separate ideas, but then as we kind of formed one idea, we kind of knew what to do, and each of our roles". Year 10 pupil*

Pupils' awareness of real-world issues

The pupils that we spoke to demonstrated an increased understanding of social challenges in their local community and beyond, which was confirmed by the interviewed teachers. Some students had experience of some of the brief's topics through other subjects, and through their friends and family. **But, by engaging with the PDAs, pupils explored the context of the problem and community's needs, gaining a more in-depth understanding of those challenges and what it means to be a problem solver.**

> *"We could see how to improve the environment just by adding little changes. We came up with biodegradable plant pots and things like that, so we got an insight into how to help the environment". Year 10 pupil*

> *"We've learned more about the different topics that we've had time to explore. It makes you more aware of different things [eg recycling food] you can do just simple things that you may have not realised before". Year 10 pupil*

82 percent of pupils who took part in the PDAs engaged meaningfully with the local community as a result.

Teacher survey

Enablers

1 **Teachers referred to engagement with the community as a significant aspect of developing topical knowledge and exploring the briefs.**

This was echoed by pupils who also suggested having more opportunities to discuss the briefs with experts, other pupils and/or external organisations embedded into the PDAs.

> *"I think that talking to other people really made us understand their personal struggles with the brief which would allow for us to cater for them more". Year 10 pupil*

"The green streets conversation opened up so much awareness of different localities in the town, and the specific economic challenges to them… that had happened in those areas, and what they were the changes they wanted to see". Year 12 teacher

2 Having enough time to dedicate to class-based conversation provided pupils with the relevant context and sparked an interest to explore the topics further by conducting primary research in the community, listening to guest speakers or visiting external organisations.

However, due to resource and/or time constraints teachers explained that more support by the RSA would be helpful in terms of linking schools with external organisations and topical experts to deepen the pupils' knowledge and apply their thinking to the research conducted in their community.

3 Both briefs, and teachers' ability to adapt to their own contexts, are key to raising awareness of social challenges by teachers and pupils alike.

Briefs provide an opportunity to pupils to explore new topics and apply their knowledge to their local context. Pupils explained that they had learned more about issues around nature, recycling, and mental health.

"The briefs are really well chosen, and they're timely. They [connect] with young people, because… they transform the focus of learning". Year 10 teacher

The relevance to the school's context was identified as a key characteristic of the briefs to ensure engagement and to focus pupils' learning on something that is happening in their community. The majority of the teachers that we spoke to praised the diversity and openness of the briefs to adapt them to their context, and observed more significant pupils' progress as a result. However, it may require more dedicated time in some of the schools to explore these concepts, and greater expertise to provide additional resources for the students.

"There's lots of world issues at the moment. Whether or not it's worth trying to engage students with that, or what school communities could do to sort of help [should be considered]… [Unpacking briefs] requires a little bit of extra work, and I think the problem is that we're all very busy with our time, so anything that is a hook that kind of gets people to engage with it in the first place is quite key". Year 12 teacher

4 Pupils said that additional resources such as statistics and videos would be supportive to their exploration of the topics.

Some of the teachers reflected on some topics being particularly challenging, but also interesting, to explore in their school context. In these situations, opportunities to link schools to topical experts and external organisations and resources would be key to driving students' awareness of social challenges.

What factors are critical to support teachers to successfully complete the Awards?

This year we set out to understand teachers' engagement with the resources provided by the RSA and the challenges and enablers for implementing the PDAs as outlined in the teacher resource pack, to submit the pupils' final proposals.

Figure 9: Delivery of the PDAs by type of lesson

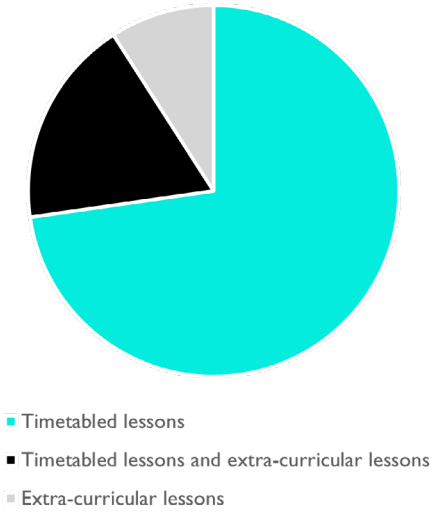
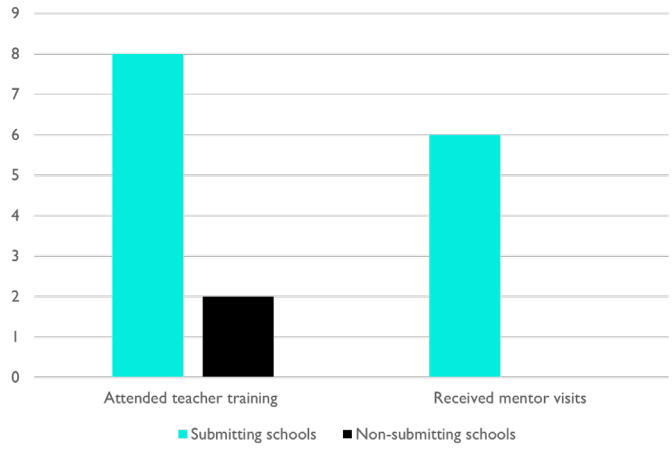
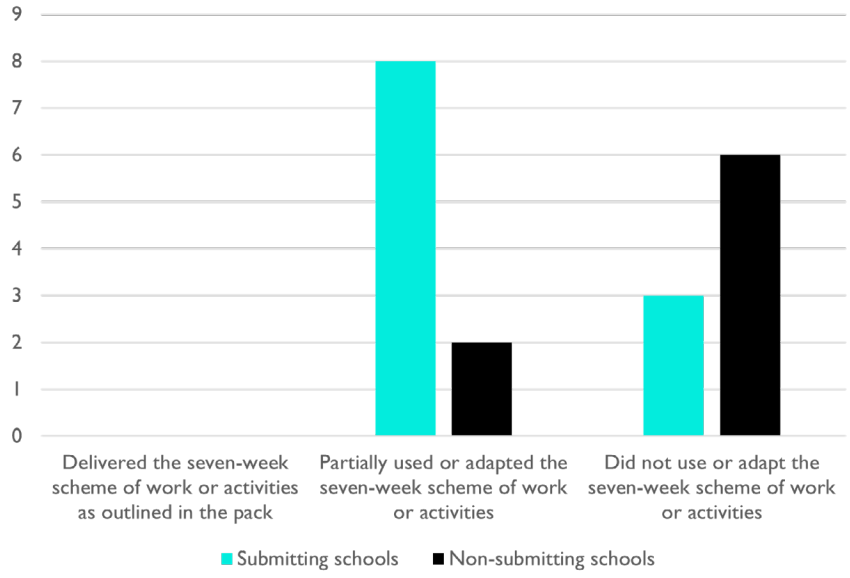


Figure 10: Number of teachers attending training and receiving mentor visits



Our teacher survey has shown that the majority of submitting schools have attended teacher training and received mentor visits (see Figure 10), with a higher number of teachers partially using or adapting the seven-week scheme of work or activities (see Figure 10). No non-submitting schools received mentor visits, but two non-submitting teachers attended teacher training (see Figure 10) and the majority did not use or adapt the seven-week scheme of work or activities (see Figure 11).[8] For most (10) of the participating schools, the PDAs were delivered as part of design subjects: 3D design, art and design, design, design and technology, product design. One school delivered the PDAs as part of environmental science. Additionally, the majority of schools (73 percent) delivered the PDAs in timetabled lessons, while few delivered the Awards as extra-curricular lessons (9 percent) (see Figure 9).

Figure 11: Teachers' engagement with resources provided



8 Figures for non-submitting schools may not be considered representative of the population due to low response rates (22 percent).

Our thematic analysis of the six interviews carried out uncovered key enablers for faithfully implementing and completing the project, and two key challenges to the implementation of the PDAs. The main enabling factors for faithful implementation of the PDAs were: **previous experience of the Awards, resources provided by the RSA, alignments with the exam boards, subject specialism, and whole-school support.** The main challenges were **time constraints** and **budget constraints**.

Enablers

1 The importance of previous experience of the PDAs emerged as an overlapping theme across our interviews.

Teachers who had taken part in the programme in previous years found that being aware of the time and resource commitments helped them with delivering the project, eg planning effectively and ensuring submission.

> *"I think we were more successful this year because it was the second year that we've done it". Year 12 teacher*

> *"Having used the Fixperts programme before we were able to deliver the lessons mainly from previous experiences". Year 12 teacher*

Teachers referred to subject specialism as a key factor in providing them with the required experience to support students to effectively engage with the design thinking process, as described in the teacher resource pack.

Teachers who referred to themselves as subject specialists expressed feeling confident about the language being used, deploying differentiation methods for learners, adapting the programme to the curriculum, and seeking opportunities for the pupils to engage meaningfully with the community.

> *"If you've perhaps not got subject specialists, it might be a bit more difficult for them, because perhaps not having a full understanding themselves of where this fits into the curriculum might be a bit of a difficulty". Year 12 teacher*

2 Alignments between the examination boards and the teacher resource pack can support the effective implementation of the PDAs.

Teachers explained that due to time and/or budget constraints, planning for the activities for the projects could be particularly challenging when participating for the first time. When assessment resources of chosen examination boards were similar to that of the PDAs, it was easier for teachers to integrate it into timetabled lessons ensuring consistent participation and submission.

Whole-school approaches or an ethos around problem solving or community engagement supports teachers to deliver the Awards.

Where schools encouraged community engagement across year groups and curricula, as a whole-school approach, we heard that teachers felt more equipped to support pupils with engaging with their local communities and talking to topical experts. Additionally, some schools encouraged teachers to provide pupils with wider opportunities to explore topics and tools that are not part of the curriculum. This in turn facilitated a smoother embedding of projects such as the PDAs into the curriculum.

Effective resources were referred to as a key enabler for delivering the programme effectively.

Teachers referred to the videos, activities, and idea generating techniques that were shared in the teacher resource pack and/or signposted via email as significantly useful.

> *"The teachers project booklet is really, really helpful… it's really well laid out and it's easy to understand… we do quite a few of those activities, just to get them to have an idea about the design process and how it works and different ways of idea generation or solving a problem… they're always really well thought through activities". Year 10 teacher*

3 All teachers called out for more locally based resources and direct links to external organisations. Teachers want more opportunities to inspire students and have experts to discuss the topics presented in the briefs.

Some participating schools have more established networks which enable them to connect with external organisations, while others are more restricted. Further advice around 'things to look at… things to watch', and opportunities to connect with local and industry experts facilitated by the RSA might improve the implementation of the programme.

Additional resources that some of the teachers asked for include more detailed judges' criteria and expectations similar to marking schemes to provide a clearer direction for students' progress, alongside secondary research on topical resources and a directory of local and/or national organisations related to the briefs.

Challenges

1 Time was consistently raised as a key challenge in implementing and (for some) completing the PDAs.

The many demands on teachers often leave a constrained period for carrying out enrichment activities, while managing a wide number of classes, fulfilling other school commitments and preparing pupils for exams. While interviewees praised the programme highly and shared a common aim to uphold high standards for the pupils, many voiced the challenge of the time commitment that is required at different stages of the programme.

From additional planning for differentiation, more time dedicated to unpacking key design thinking concepts and idea generation, to uploading the work at the submission stage, teachers often had to adapt the activities and scheme of work according to the school's context.

Additionally, **the implications of Covid-19 on schools' budgets, timetabling, enrichment activities, resources, staffing, pupil attendance and risk assessments meant that priorities shifted for many of the schools that registered to take part and were not able to continue with the programme.**

> *"Timing was a major issue. We have one 50 minute lesson per week and the training sessions ran when I had classes. The suggested activities would have taken two weeks to complete, so I adapted them". Year 7 and 8 teacher*

> *"In terms of actually finding the time to kind of make [students finish] the project… and sorting out the work and getting it uploaded… timing wise it's quite tricky, because you also have your exam classes trying to get their coursework finished". Year 12 teacher*

2 Budget constraints were raised as a key challenge to teachers' effective implementation of the programme.

The financial demands are particularly high in art and design and technology (DT) based departments where budgets tend to be small and there are high expenses for resources (eg modelling materials) alongside large class-sizes. Teachers wre often faced with competing priorities to deliver the curriculum effectively. Extra materials and out-of-class activities can be expensive and equitable distribution of resources can be hard to achieve.

Where teachers were able to deliver the PDAs as an extracurricular activity, budgets tended to be smaller and often drew the departmental budget. Budget constraints are felt more acutely in state schools, and so this should be considered when in terms of the degree of inclusivity of the different elements of the programme, such as recruitment, engagement, and the mentoring and judging process.

> *"Budgets are always really tight in DT, it's a really expensive subject. [The budget] is always, sort of, for curriculum-based stuff. But when it comes to enrichment, you have to jump through quite a lot of hoops to get any additional budget for any enrichment activities". Year 9 teacher*

5

Recommendations for delivery and evaluation

Recommendations for the RSA on the delivery of the PDAs

We identify the following recommendations to support teachers in implementing the PDAs with the aim of increasing our reach, nurturing pupils' design capabilities, creative self-efficacy and awareness of social challenges.

1. **Organise an event at the start of the year (virtual or in-person) to launch the competition and inspire pupils to become changemakers.** This could include past participants, Student Design Awards alumni, Fellows, judges and/or topic experts to spark an interest in the Awards and strengthen engagement from the start.
2. **Develop a series of events (virtual and/or in person) to deepen knowledge and raise aspirations.** These could include:
   - Networking opportunities within participating schools for pupils and teachers alike, to encourage conversations and share experiences to overcome challenges and share ideas.
   - Brief-related events where experts can give brief talks with Q&A sessions.
   - Design thinking workshops to explore techniques and unpack novel concepts.
3. **Continue to provide additional resources and idea-generating techniques related to the briefs.** Resources, alongside workshops for pupils, could include extra activities such as creative thinking methods, or information about local organisations.
4. **Facilitate connections between schools, local organisations and individuals, such as Fellows or partners, to provide more place-based and brief-related information, particularly for schools that might lack these networks.** Introduce teachers so they might connect to organise school trips and/or guest speakers.
5. **Provide enhanced feedback particularly to those that were not successful.** This should include detailed feedback by judges, developing a criteria guide to be shared with teachers at the start of the competition.
6. **Target schools less likely to engage in creative opportunities such as the PDAs.** Consider widening the participation of the PDAs, ensuring support is provided for effective implementation and submission of the final proposal. This may include providing extensions and/or flexible deadlines to accommodate teachers' schedules and commitments.

Recommendations for the RSA on future evaluation of the PDAs

1. **Assess pupils' skills levels at baseline and endline with the support of teachers.** Teachers should be provided a set of skills' criteria upon registration that they can use to assess pupils' levels of, for example, problem solving and creativity. Consider partnerships with the Skills Builder Universal Framework to ensure effective benchmarking and assessment of progress.
2. **Conduct a teachers' survey about pupils' level of awareness of the topics of the briefs** upon registration and submission of work. Consider questions such as: 'How many students have knowledge of… ' using 'none, very few, some, most, all' as a measure.
3. **Conduct short qualitative interviews with teachers for deeper insights into the PDAs' experience.** Consider delivering these during school visits by, for example, mentors and/or at the ceremony.
4. **Explore pupils' experiences and perception of progress.** This should include a pupil survey, and focus groups should be conducted at the end of the Awards. Consider exploring experiences and progress by brief to develop case studies.
5. **Gather more data to explore factors that may contribute to levels of creative self-efficacy, such as, age.**

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