

## RESEARCH ARTICLE

## **‘Trying to open the doors’: The co-creation of digital resources for disadvantaged primary school pupils**

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## ABSTRACT

This article explores the use of co-creation as an approach for involving university students in the development of educational initiatives for widening participation (WP) in higher education (HE) during the COVID-19 pandemic. At present, research and guidance looking at how co-creation practices can enable the production of such initiatives within HE is highly limited, which can deter others from employing this approach. To this end, we provide a case study of a WP project called Topic in a Box that involved staff and students working together to produce digital learning material for primary schools and students over several months. Through the use of semi-structured interviews with nine students, this research provides insight into the steps that were taken to develop the project, capturing the motivations, benefits and challenges of co-creation practice from a student perspective. We argue that this mode of co-creation should be used to a greater extent across the university sector and in recognition that university students have much to offer in terms of widening access to university.

## KEYWORDS

co-creation, students as partners, widening participation

The term “widening participation” (WP) has a long history within the UK and Australia in particular, broadly referring to policies and practices designed to address inequalities in the higher education (HE) system (Thiele et al., 2017). Over the past 20 years, higher education institutions (HEIs) in these countries have invested considerable sums on measures to support government aims around WP, many of which have centered strongly on improving access to HE for students from under-represented and disadvantaged groups (Homer & Thiele, 2022; Osborne, 2003; Thomas et al., 2012). Outreach programmes and activities have featured prominently as one of the main measures used by HEIs to pursue such aims, with the ambition being to offset the negative effects of social, cultural, and economic disadvantage (e.g., Thiele et al., 2017). Initiatives include, for example, on-campus visits, mentoring programmes, and in-school workshops, visits, and talks that have

traditionally been delivered to school pupils in a face-to-face capacity by university staff and/or students.

The underlying assumption behind these WP initiatives is that the provision of educational access will result in positive achievement after graduation, and thus help to improve social mobility and labour market outcomes regardless of prior educational or social disadvantage (Pitman et al., 2019). However, many have questioned the role of universities in WP and raised concerns about WP practices being more of a form of “doing to” than “doing with” where the primary focus is on the university (Pahl & Evans, 2018) and not the young people (broadly defined as those under the age of 21 years old).

In part, these concerns have stemmed from a perceived lack of collaboration between HEIs, schools, and young people, including school pupils and university students, in designing and implementing WP activities (Austin, 2021; Pahl & Evans, 2018). Austin (2021) corroborated this, noting that traditionally many universities have focused their energies on developing activities *for* schools and their pupils rather than engaging in rich collaborations with them. Furthermore, while university students are often involved in helping to deliver WP activities, there are a dearth of examples where they are involved in developing these at a deeper level, as the design and implementation of WP activities has predominantly been in the domain of professional staff within HEIs. Consequently, young people’s voices and creative understandings of HE have not been a central part of most WP activities (Pahl & Evans, 2018), which could contribute to them feeling distant from universities and seeing these as places in which they do not necessarily belong or feel at home.

The COVID-19 pandemic has posed challenges that could make young people feel even more distant from universities and amplify pre-existing inequalities in students’ educational and subsequent career outcomes (Blainey et al., 2020; Cullinane & Montacute, 2020; Roberts & Danechi, 2021; Thiele & Homer, 2022). Against this backdrop, it has become arguably more crucial than ever for HEIs to re-examine and adjust their established WP approaches to ensure these support students and schools effectively (Austin, 2021; Rainford, 2021). While this itself presents challenges to HEIs and to those tasked with delivering WP initiatives, it also provides an opportunity for trialling new approaches, concepts, and ideas that could strengthen and transform existing WP practices. One such concept that offers considerable potential in these respects, and yet has received limited attention in the field of WP, is co-creation, a pedagogical idea that involves staff and students working together to create educational activities (Bovill et al., 2016).

In this article, we aimed to explore the use of co-creation as an approach for involving university students in the development and implementation of a WP project for primary school students during the pandemic. In doing so, we sought to firstly provide insight into how co-creation processes can enable the production of WP initiatives in more collaborative, innovative ways, and, secondly, to capture the motivations, benefits, and challenges of co-creation practice from a student’s perspective.

#### CO-CREATION AS A TOOL FOR INVOLVING STUDENTS IN WIDENING PARTICIPATION

Co-creation offers numerous possible benefits as an approach for fostering deep and meaningful collaborations between students and staff on educational initiatives, which, as noted, there is a need for in the field of WP (Mercer-Mapstone et al., 2017). As such, researchers have argued that “co-creation involves developing deeper relationships between students and staff, and between students and other students” (Bovill, 2020, 1026). Moreover, co-creation is also considered an approach based on constructivist learning

models that involves learners developing knowledge and skills both through their engagement with new concepts and experiences and through their interactions with staff and their peers (Lubicz-Nawrocka, 2020; Siau et al., 2010).

Students' interactions with staff are thus a crucial aspect of co-creation, which must not be underestimated as they enable the sharing of knowledge, offer opportunities for mutual learning, and allow for new forms of knowledge to emerge. Importantly, however, co-creation is considered a concept that emphasises learner empowerment and positions students as experts with valued lived experiences that can enrich understandings of the world (Gravett et al., 2019; Ryan & Tidbury, 2013). In this respect, co-creation does not assume the level of equality sometimes implied with terms such as "partnership," nor does it view students as "passive consumers" (Bovill, 2020).

Empowering students to discuss their viewpoints and to develop educational approaches in ways that they think are relevant through co-creation is itself considered important, not least as a way of hearing from students. Concomitantly, in helping educational institutions to hear from students, co-creation can be a valuable tool for enabling institutions to understand and meet unfulfilled social needs and for expanding their reach to domains where they have limited leverage (Torfing et al., 2021). Co-creation approaches that centre on learner empowerment have also been shown to have many other benefits in helping to, for example, improve students' relationships with staff, enhancing their levels of engagement with education, and enabling the development of graduate attributes and skills (Cook-Sather et al., 2014; Nygaard et al., 2013).

Such benefits have been captured across a range of facets of HE, from students co-creating curricular and pedagogical practices (Bovill et al., 2011; Delpish et al., 2010), to assessment methods (Doyle et al., 2019; Deeley & Bovill, 2017) and technology-based teaching and learning (Prescott et al., 2020). Additionally, authors have also specifically discussed the potential of co-creation for supporting young people's engagement in WP (Pahl & Evans, 2018) and for enabling university students to bring forward valued knowledge gained from their lived experiences (both from school and within HE) to offer purposive and innovative solutions to educational challenges (Farenga, 2019). At present, however, there is limited research and guidance available to support the use of co-creation within WP. Furthermore, to our knowledge, existing studies have not looked at how WP activities can be co-created from the perspective of university students, especially in the context of a pandemic (Steinhaus et al., 2018).

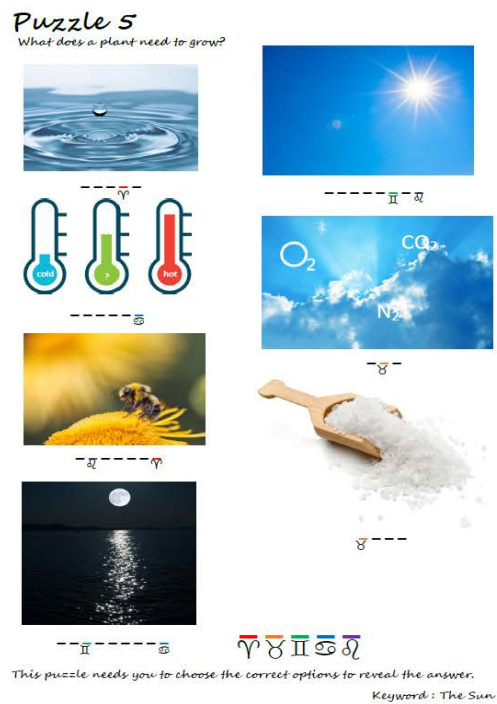
### **Topic in a Box**

To provide insights into the process of using co-creation within WP from students' perspectives, this article presents a case study of a WP project called Topic in a Box. Previous studies have endorsed using case study approaches like this to investigate co-creation processes within universities, as they allow in-depth, multi-faceted examination of "real-world cases" where the contextual conditions of projects are paramount to gaining better understandings (Yin, 2014, 16).

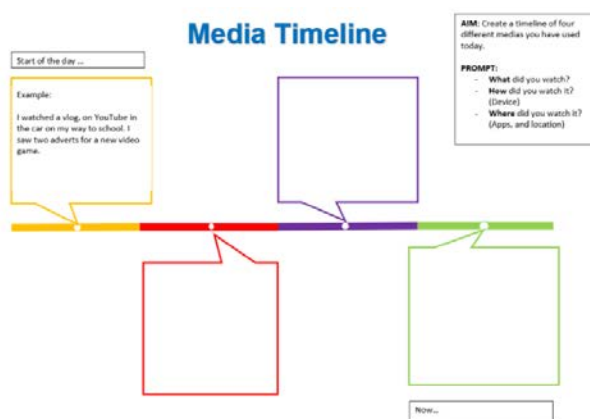
The Topic in a Box project was undertaken in a large university in England and specifically targeted primary school pupils in disadvantaged areas of the country. This aimed to increase their interest in different subjects and to expose them to HE early by providing them with digital "boxes" that included learning tools, lessons, and innovative practical activities. A key deliverable of the project was for university students to create these digital boxes, which contained materials pertaining to four different subjects or topics, namely:

history, French, sustainability, and film studies. Two examples of practical activities relating to the Sustainability Box and the Film Studies Box are presented in Figures 1 and 2 respectively.

**Figure 1. Sustainability Box**



**Figure 2. Film Studies Box**



The specific boxes students worked on depended on their area of expertise and the department they were in. All students worked alongside academics from the corresponding departments as well as professional staff members involved in WP who had experience working with primary school pupils. These staff members met regularly with the students and played a crucial role in guiding them to develop resources.

Siau et al. (2010) argue that “co-creation is based on constructivist learning models” (3), which enable students to build and develop their understanding through collaborative

enquiry with others. The constructivist learning model that was the basis for this project required staff to move from “sage on the stage, to the guide on the side” (King, 1993), with staff taking on the role of facilitators and students taking a more active role in creating the teaching materials (Atherton, 2009). Thus, the project was designed to be steered by the students, and this article focuses on the experiences of the students as the co-creators, rather than on the experiences of staff.

Similar to other co-creation projects, which have highlighted the importance of formally recognising students as joint constructors of knowledge, the student co-creators involved in this project were all paid for their time and effort in developing the resources (Bovill, 2014; Ruskin & Bilous, 2021).

### Participants

Eleven students took part in the Topic in a Box initiative in 2020/21, all of whom were invited to take part in interviews via email. This qualitative case study focuses on the experiences of nine of the students who had responded to register an interest in being interviewed as part of the initiative. The purposive sampling approach used allowed us to “select respondents that [were] most likely to yield appropriate and useful information” relevant to the phenomena at hand (Kelly, 2010, 317). Furthermore, the relatively small sample size was considered important to enable in-depth analysis of participants’ experiences but was also sufficiently large enough to allow the unfolding of a “new and richly textured understanding” (Sandelowski, 1995, 183).

The participants who took part in this study had all been selected for the Topic in a Box project based on their skills, interests, and the expertise they offered. Moreover, the project sought to involve students from different backgrounds and academic disciplines to promote greater inclusivity and awareness of WP practices and to recognise the significance of students’ intersectional and experiential differences. It should be noted that the nine participants were female. However, four were from ethnic minority backgrounds, two came from low socioeconomic status (SES) backgrounds (i.e., they resided in areas of deprivation and came from low-income families), and one student had a disability. Table 1 outlines the students’ pseudonymised names and their degree programmes of study.

**Table 1. Participants**

PARTICIPANT NAME	BOX	COURSE TITLE
Amanda	Sustainability Tour Box	English and Theatre Studies
Lori	French Revolution in a Box	French
Aleesha	French Revolution in a Box	French
Sian	French Revolution in a Box	French
Roseanna	French Revolution in a Box	French
Meerab	Film in a Box and Sustainability Tour Box	Film & TV Studies
Khadija	Sustainability Tour Box	Management
Kira	Film in a Box	Film & TV Studies
Casey	Film in a Box	Film & TV Studies

### Methods and procedure

This case study used in-depth semi-structured interviews to capture individuals' experiences as co-creators of the Topic in a Box initiative. The interview protocol contained eight open-ended questions with probes that were developed iteratively to guide students through their experiences in a logical progression. For example, the first questions and complementary probes explored how and why students became involved with the project. Then the next set of questions and probes centered on the steps taken to develop the project, including the barriers/facilitators students perceived as influential. The final questions and probes explored the benefits and/or challenges associated with the project for both students as co-creators and for the recipient primary school teachers and pupils.

All student co-creators were invited to take part in interviews via an email which was sent by WP staff members after they had completed creating the learning material for the project in 2020/21. The nine students (all females) who responded to register their interest in participating took part in the study.

The interviews were conducted during the summer of 2021 and, due to the on-going COVID-19 pandemic, were conducted online via the digital platform Microsoft Teams. Before initiating the interview, participants were given information about the study and asked for informed consent. It was explained that interviews would last approximately an hour (including debriefing) and would be recorded but that participants would be pseudonymised to uphold anonymity. The interviews were later transcribed and analysed.

### Data analysis

The interview transcripts were analysed thematically. This method of data analysis enabled the identification, labelling, and description of themes within the interview data (Braun & Clarke, 2006). Through the analysis, there were opportunities to examine the individual perspectives of the students, capture similarities and differences amongst them, and provide insight into their lived experiences (Nowell et al., 2017).

The interview data was coded into themes using the software analysis tool QSR NVivo 11. Through the analytical process, there was an acknowledged interpretation of the data, which meant that the researchers had to apply their judgment in identifying themes and patterns (Braun & Clark, 2006). Further layers of credibility to the data analysis were applied by member checking to verify the interpretations of the codes and themes (Lincoln & Guba, 1985). Specifically, a second researcher reviewed the coding procedure from initial codes to themes in over half of the transcript (n=5). Consensus was reached across all codes and themes amongst two researchers through discussion, which meant that inter-rater reliability was equal to 1.00 (Moustakas, 1994; Spence et al., 2013).

### FINDINGS AND DISCUSSION

Currently, there is limited research and guidance looking at how co-creation practices can be used within the field of WP, and even less so in the context of the COVID-19 pandemic (Steinhaus et al., 2018). This article aimed to address these gaps in the literature, drawing on a case study of a project called Topic in a Box to examine the process of using co-creation within WP from students' perspectives during the pandemic. Three overarching themes were identified through thematic analysis of the data, namely: working together, pedagogical considerations, and giving back. The number of codes and quotes for each theme are outlined in Table 2 below.

**Table 2. Number of quotes for each them**

THEME	WORKING TOGETHER	PEDAGOGICAL CONSIDERATIONS	GIVING BACK
NUMBER OF CODES	7	9	6
NUMBER OF QUOTES	74	89	51

The three themes provide insight into different yet often overlapping aspects of the co-creation process that students considered influential in developing/implementing the WP initiative. The first theme looks at how students and staff worked together through co-creation to enable the production of the WP initiative. The second theme centers on pedagogical aspects of the co-creation process, providing insight into how students developed teaching materials that they considered innovative and beneficial for supporting the school pupils' educational journeys and future choices. The third theme sets out students' conceptions of co-creating teaching and learning materials for WP as a way of giving back, capturing key motivations and benefits associated with co-creation from a student's perspective.

These three themes are discussed in conjunction with relevant literature and with an emphasis on students' own pertinent descriptions as co-creators of learning materials, which are the central focus of this case study.

### **Working together**

The students created the boxes with the support of staff; both parties contributed with shared responsibilities (Cho et al., 2020). However, as noted, the project was designed to be student-led, which several participants explicitly mentioned (e.g., Casey, Meerab, Sian) when recalling early encounters with staff. As such, the start of the co-creation process began with staff and students meeting together to establish working practices, which enabled them to plan, prepare, and organise how they would work together.

In many respects, the co-creation process was supported by social learning (Hoppitt & Laland, 2013) from the outset, whereby students' interactions with staff facilitated the creation of the learning materials, as explained by Khadija: "[Staff member] introduced the whole idea and premise of it, and we just started to kind of understand exactly what we needed."

Sian also described the interactive process that underpinned the development of materials, providing an insight into the initial training and guidance they received:

We had to go to a kind of a training day where we were taught the stuff that we would then be teaching the kids to make sure we knew what we were talking about and that was good . . . and then from there on, we kind of, we were put into groups. We gradually started meeting in those groups and were given some guidance as to how to direct the lessons for the kids.

The work on developing the initiative began before the UK lockdown in March 2020, so for some participants, there was a crossover period where they met face to face before moving to digital communications, as explained by Casey: "I think we got to have like one meeting and then COVID hit and all of that. Since then, we've been online, which has been a really good skill because organising yourself online and meeting online is quite difficult."

A few participants (e.g., Amanda) found the process of working and meeting online “tricky,” whilst some found they “missed that personal connection” (Aleesha). Conversely, other students, including Meerab, found the move online helpful because they were not, as she explained, “restricted by physical location, we could be anywhere in the world at any time and have a quick meeting.”

Once the students had come together initially, they then worked in relative isolation from each other, but with regular touch points with staff, as explained by Meerab: “We would just kind of be working independently and then whenever we had something that we were like, OK, we’re at a point where we need to show this to get feedback from [staff member] and [staff member].”

The process of seeking and receiving feedback described by Meerab is in many ways a crucial aspect of co-creation, which relies on students and staff trusting and respecting one another and recognising that responsibility for learning is shared (Bovill, 2020). Like Meerab, all participants described benefits to working with staff but also with each other to develop materials, get feedback, and new ideas along the way. Amanda, for example, described “being able to consult with staff and students quite a lot” and felt that this was important. Similarly, Kira spoke about receiving “advice from staff about previous projects,” which helped her to feel more confident about the work that she was producing. Others, including Lori, also spoke about how they felt that working with staff with primary school teaching experience was good for them:

I think communication with [staff member] as well. She’s been so, so helpful and just having her there is an extra point of contact who’s got a lot of school experience and has done projects before so knows them inside out, I think just make the most of her cause she’s so happy to help. (Lori)

Students commonly perceived staff to be helpful, approachable, and experienced, which was important in enabling them to have good communication with them and could help to establish partnership values such as trust, respect, and reciprocity (Bovill, 2020; Smith et al., 2021). Such values are considered underpinning principles for working in partnership (Bovill, 2014; Cook-Sather et al., 2014) and may arguably have been particularly crucial for enabling students to co-create teaching and learning materials with staff successfully during a time of unprecedented change and disruption.

### **Pedagogical considerations**

It has been recognised that there is a need to support pupils from a primary school age if we are to address the systemic barriers to HE later in life (Taylor, 2008; Watt, 2016). This intervention sought to provide co-created lesson plans, schemes of work, and supportive learning materials for school pupils aged between 8 to 11 years of age. These materials were developed between staff and students, working “collaboratively with one another to create components of curricula and/or pedagogical approaches” (Bovill et al., 2016, 6–7). The student co-creators spent time thinking about how they could best produce the materials, whilst linking to primary level curriculum, as discussed by Kira:

I mean, we actually looked at the school curriculum and then tried to pair up some of the things in the box with what they would already be learning, but we tried to ensure that it didn't seem just like another normal boring lesson because we didn't



think children would engage as much with it if it was like that. We tried to make it really fun and engaging.

Another student, Khad, explained the process of understanding what material would be suitable and linked to the primary level curriculum as follows:

I went into all these kind of websites for primary school students in (Year) Five and Six and I was watching BBC videos and all these like videos online on YouTube. Or reading what different primary schools are doing in terms of the curriculum to try and understand their language a lot more because I think it's quite easy to complicate things.

The students, working with staff, spent many months crafting and developing resources which they felt were engaging, while also being mindful that, as with many WP and outreach practitioners, they were not teachers or academics themselves (O'Brien, 2013). Often drawing on their own experiences, the students also frequently emphasised the importance of "stretching and challenging" the school pupils, moving away from a deficit approach which is often taken when designing activities for disadvantaged school pupils (Thiele et al., 2017), as explained by Casey:

I very much believe that they know a lot more than probably people give them credit for. . . . We were hoping that the course would also be challenging for them as well. So, like, not just kind of spoon-feeding them these concepts, but encouraging them to also reach and stretch themselves a bit more as well.

In many respects, the students were following a constructivist model of learning, where school pupils were not seen as passive vessels to be filled, but rather inquisitive minds which wanted to creatively explore new subject matters in depth (King, 1993), as explained by Roseanna:

I think hopefully from the documents kids can learn that learning doesn't have to just be for like a job, it can also just be because you're genuinely curious and that university can be that space to feed that curiosity.

The constructivist learning model that was the basis for the project was also reflected in the mode of delivery. The student co-creators were designing learning materials for both teachers at schools as well as the school pupils. It was the teacher who needed to guide the young people through the lesson, but in many respects, they were advocating collaborative learning (Slavin, 1995), where the teacher and pupils learned together. There was a recognition that the teachers were not necessarily going to be "specialists on these subjects" (Sian) within the digital boxes. However, participants frequently discussed including "practical activities" (Amanda) to make the sessions "fun and engaging" (Kira), where the school pupils and teachers could "respond to each other" (Roseanna).

Using co-creation to enable students to generate subject-specific content for WP initiatives that they consider fun, engaging, and valuable can add an element of authenticity to the experiences of pupils who are currently studying, which may be particularly valuable for younger age groups (Austin & Hatt, 2005). For example, it could help to develop their

curiosity and awareness of different subjects that they could pursue in the future early on, before the options available to them are restricted (Bowes et al., 2015). In turn, the involvement of students as co-creators of subject-specific material could be valuable for moving WP and outreach work from a position of generalised information and guidance about university, to a more subject-specific space, which past studies have highlighted as being important (Rainford, 2021). In these respects, co-creation could help change existing modes of practice within WP, while increasing children's awareness of subjects early and moving away from deficit models that could limit their prospects and future life opportunities.

### **Giving back**

The young people who developed resources for this intervention had a variety of motivations for taking part, but the most notable was a desire to give back to others. Kira, for example, discussed her motivations for being involved with the project in relation to "helping the next generation," and Alesha described her desire to contribute to the project as a "good cause." In turn, others expressed motivations to give back more specifically, by highlighting the range of subjects that young people could study at university and acted, in many respects, as advocates for their subjects. Casey, for example, discussed being motivated to take part in the project and give back to her community as follows:

I think that's also another reason why I really wanted to do this, 'cause I was very aware that, like, especially people, especially in the black community, creative subjects and stuff like that are not, like, you're not going to be encouraged into those positions.

The desire to pass on to others the opportunities that had been afforded to participants was commonly discussed and could help school pupils to see that HE is in their reach (Gale et al., 2010). As such, participants repeatedly discussed wanting to inspire primary school pupils from disadvantaged areas to imagine and believe that HE can be a viable future option for them (Thomas et al., 2012). This was emphasised by Sian, who had felt this was something that would have helped her:

You're not going to have as much knowledge about how university works as someone who doesn't have family members who have been to university and also in some communities, you might not even think that university is an attainable thing for you to do, so I think it's great for universities to show that anyone can come.

Other participants also discussed the value of the project as a way of expanding knowledge and awareness of university, whilst developing pupils' skills, as explained by Lori:

I think the best thing about it was not only the people I worked with, but also the fact that, knowing that children are gonna be able to learn some new skills through this box, and hopefully it will expand their knowledge of university and hopefully also inspire them to, like, think about that in the future.

Raising awareness of university is considered a core WP aim, as has been “raising aspirations,” which is a contested term in which people from low SES backgrounds are given opportunities to take part in programmes in which they can aspire to higher education (Rizzica, 2020). There has also been much debate around the associations between aspirations and future outcomes (Armstrong & Cairnduff, 2012; Rainford, 2021). The student co-creators saw the project as an opportunity to not only help with developing pupils’ skills and their awareness about HE and different subjects but also as an opportunity to develop their own knowledge, skills, and understanding about subjects, as explained by Amanda:

I think it’s a skill in breaking down concepts, because I don’t know if you know that saying [that] it’s like “if you can teach something that means you really understand it.” It’s the same concept for making this because you have to understand these concepts yourselves. And so you challenge yourself to break it down into digestible, you know, chunks for people.

Similarly, Meerab discussed how the project enabled her to learn and develop new skills:

So obviously, there’s a lot of things that I’ve learned on this through Topic in the Box in terms of, you know, pitching something to like the right audience level and making things engaging, and being able to like address specific issues.

All the participants felt that the project was valuable in terms of enabling them to gain skills, knowledge, and a “sense of fulfilment from the process” (Sian) at the same as providing resources that would be used by younger school pupils. Amanda described this two-way learning process as follows: “Like the work you’re doing is benefiting other people and young people, but also it’s a benefit to yourself with the new skills you’re gaining and the sort of new connections you can make as well.”

Some students felt that by developing these boxes and engaging with school pupils they could try to make university seem more open and “give them that personal connection” (Aleesha) with the institution. Additionally, several students, such as Aleesha, talked about trying to “normalise” university and not make it seem so distant: “I think just having another human face who just seems like a normal person and saying, well, actually, whatever, whatever you, whatever you’re interested in, there’s room for it here” (Aleesha).

There is evidence that young people from disadvantaged backgrounds feel distant from universities, that they do not see themselves represented in the publicity materials within universities (Nutt, 2013) or within the teaching staff (Wakeling, 2010), which can lead to a sense of “exclusionary discourses of otherness” (Bennett et al., 2015). In their narratives, participants discussed different ways in which the boxes may help to counter these issues and “reach” the school pupils. One of these ways was by including pre-recorded videoclips of themselves in the boxes, which enabled them to address the school pupils directly.

These types of student-led learning materials can be seen to be more genuine (Thomas et al., 2012) and have been found to be useful in other primary WP/outreach programmes (MacDonnell, 2016). Furthermore, participants frequently emphasised the

importance of including materials that would enable the school pupils to see university as an option that is for them, as explained by Sian:

I think more specifically we were trying to reach, perhaps, people who didn't think university could be an option for them. Or like first, well, obviously, Year Six students won't be going to university for a long time, but some students that perhaps haven't had people in their families go to university. Like trying to open the doors to them, if you know what I mean.

In her account, Roseanna discussed how the boxes might be able to support young people to "broaden their horizons" and "make learning that bit more exciting." She went on to describe how the learning materials within the boxes might enable young people to see other options that are available for them:

The elements [of the box] of wanting students to get on to higher education. Now I think projects like this are really important for things like that because it's just drip-feeding those sort of pathways in school from a really early age that will then hopefully just set something off in a student. And it's not to say that we're gonna make you go to university, but it's letting them know that university is an option.

The desire that students like Roseanna and also Lori, Casey, and Sian commonly expressed to widen understandings of HE for pupils from disadvantaged backgrounds is an integral part of the project. Moreover, in seeking to inspire pupils to learn about different subjects, student co-creators were enabled to give back and gain skills, knowledge, and expertise through a novel sense of experiential learning. Thus, in many respects, findings highlight how the creation of the learning materials, with student co-creators at the centre of the design and production, was mutually beneficial, and could be valuable for enabling pupils from disadvantaged backgrounds to recognise that they can also access HE.

#### DISCUSSION AND CONCLUDING REMARKS

University students have knowledge and lived experiences that could be uniquely valuable for enhancing WP practices, but they are often missed in dialogues around shaping and implementing these practices to promote greater equality of opportunity (Pahl & Evans, 2018). In this paper, we provide insight into how a co-creation approach can be used to involve students in the development of WP initiatives and thus help to foster greater collaboration but also innovation in this field. Our findings outline how students and staff worked together through co-creation to enable the production of a WP initiative that was itself novel and based on a constructivist learning approach rather than a deficit model of outreach. Although other researchers have highlighted the inherent challenges with deficit models of widening participation to university (Rainford, 2021), this research has demonstrated that meaningful programmes and resources can be produced in conjunction with young people. The authors of this paper would advocate for exploration by others in the field to see if it may be appropriate to incorporate this practice more commonly within other universities.

We also provide insight into students' motivations for engaging in co-creation projects related to WP and capture ways in which this was mutually beneficial. For example, the students gained experience, skills, and a sense of "giving back," whilst the school pupils

may be able to benefit from lessons which are topical and created with them specifically in mind. It should, however, be borne in mind that the study does not capture the experiences of the school pupils themselves or the staff members (teachers and WP staff) involved in the project. Therefore, while students' narratives highlight potential ways in which co-creation could enhance WP initiatives, further research is needed to capture the impacts and added benefits that pupils, schools, and staff may derive from co-creation-based WP projects.

Although the COVID-19 pandemic has now doubtlessly focused minds on online, blended, or digital approaches, these types of approaches have previously been explored to support the learning of students from under-represented backgrounds in other circumstances, for example, with those who live in rural communities (Osborne, 2003). However, there should be acknowledgement of the digital divide which excludes certain groups, especially those from disadvantaged backgrounds, from engaging effectively with the digital world (Holmes & Burgess, 2022). While the Topic in a Box project was delivered via schools in the UK where issues with access to digital resources are rare, this is not the case for many students who lack access to the internet and digital resources at home, or indeed for many schools and students in other countries.

Many issues such as digital exclusion, which is associated with poverty, have been amplified by the pandemic and could in the longer-term exacerbate the stark inequalities that exist in relation to HE participation within the UK. WP and outreach work could play a crucial role in helping to close these gaps, ensuring that the possibilities of future education and career options are articulated to young people. These student co-created lessons have sought to open the possibilities beyond compulsory education, demonstrating a variety of different subjects pupils could study within university as a place that is for them.

*This project was granted ethical approval from the University Ethics Committee (HSSREC 122/19-20) in April 2020.*

#### NOTE ON CONTRIBUTORS

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