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Regular Article

Lessons Learned from North Wales Children's University Pilot

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ABSTRACT

Following a successful pilot with Wrexham and Flintshire Children's University, the North Wales Children's University (NWCU) was created and extended across the region, also extending the scope of research. Previous research highlights the benefits of children's engagement with Children's University, so this study focused on the non-cognitive outcomes of participation, enjoyment of learning, willingness to try new things, alongside exploring any sex, ethnicity, and local authority differences. Out of the children who enrolled and completed activities in NWCU, 802 children completed a survey at Time 1, and 429 children completed a survey four months later at Time 2 across 35 North Wales schools, to explore the potential impacts of participation. Analyses using non-parametric tests found several key differences including between girls and boys and various local authorities, necessitating further investigation. Ethnicity data could not be compared due to insufficient variability within a mostly white sample. Overall, the anticipated uplift in scores post-implementation was not achieved, for which we postulate several suggestions. Recommendations centre on the need to consider how the most disadvantaged children and those from minority ethnic groups may be engaged with the CU as the data suggest that they may have been absent from the sample.

1. Background

Children's University (CU) is a charity with a focus on developing a love of learning in children. It works in partnership with schools to engage children with extra-curricular activities offered by diverse partner organisations. The programme encourages structured enrichment activities beyond the school day designed to increase engagement, aspirations, and wider skills. The initiative is underpinned by the principles of enrichment education, with participation in voluntary and validated learning activities drawing on experiential, social, and informal learning, whilst encouraging autonomy and lifelong engagement with learning.

CU highlights the positive impact of extra-curricular activities on cognitive and non-cognitive outcomes, noting attainment, positive identification with school, self-confidence, and resilience (Children's University, 2022). Children's University (2025) identifies that lack of confidence, aspiration, and achievement are affected by disadvantage, with 25% of the most disadvantaged children proceeding to achieve below expected attainment levels compared to their peers. In this context, disadvantage refers to socioeconomic variables, such as being in receipt of Free School Meals or having low household income. Through engagement with its programmes, it aims to create a "level playing field of opportunity" (n.p.) for children of all backgrounds and open the door to attainment for all.

Children's University offers a wide variety of activities depending on the local area the children live. On its website, there is the option to search by postcode and type of activity, which can include anything from Church Club, Break Dancing, and Art Club, to Archery, Scouting, and Cartography. There is also the option to search for online-only activities; these activities refer to those that are computer-based and completed at a distance (as was necessary during the first pilot across the COVID19 lockdowns in the UK) in children's own homes or on publicly accessible computers, such as local libraries. The chosen activities depend entirely on the school, with some classes participating as a group, and some allowing children to independently pursue activities. Again, the duration of participation relies on schools, but the children would have had chance to participate in the required number of hours needed to 'graduate' at the end by collecting a stamp for every hour of activity (30+ hours).

Effects on children's attainment is a key feature in the literature relating to the Children's University. A report on the educational impact of participation in the CU of Sheffield Children's University (now

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expanded into South Yorkshire CU) by Hamshaw (2020), shows "compelling evidence" of the link between participating in CU activities and academic performance, attendance, and attitude (p.23). One of the ways that the CU engages children is through awards. Hamshaw (2020) demonstrated that at each award level, Bronze through Gold and into the 100- and 200-hours awards, attendance improved (p.9 and p.16). Overall, the research shows that members of the CU consistently perform better (academically) than their non-CU counterparts.

An evaluation commissioned by the Education Endowment Foundation (EEF) and conducted by Gorard et al. (2017), found that across 68 schools, children in schools participating in the CU made favourable progress in comparison to other schools; children had gained two months in maths and reading. This report also noted that gains were made in what the CU refers to as "essential skills". Teamwork skills and social responsibility improved and there was an increase in the likelihood of the children choosing professional occupations to pursue in the future. Children eligible for free school meals (seen as a measure of socio-economic disadvantage) also made gains in maths and teamwork, which were not seen in non-participating schools. This demographic also reported higher levels of communication, empathy, self-confidence, resilience, and happiness after the intervention. Within this initial report we begin to see the benefits of participation in the CU on non-cognitive skills.

A full follow up was commissioned by the EEF, due in 2024 but delayed until March 2025. In this report, Roy et al. (2025, p. 95) found that children reported benefits of being involved with their teamwork skills, having a sense of pride, and they were able to stay positive in outlook. CU Coordinators also reported a positive impact on pupils' sense of achievement, but increased confidence and self-belief were reported by fewer than half of the participating children. However, the latest findings from the effectiveness evaluation suggest overall that participation in the Children's University makes no significant impact on academic attainment in maths or reading. They also found no significant impact on non-cognitive outcomes, which is a deviation from previous findings and requires further investigation.

In the 2023 State of the Nation report, the CU asserts that a skills approach 'holds huge potential' for supporting the development of skills which ready the children for work and life (Nolan et al., 2023, p.15). The skills, developed through participation in CU activities are listed as Listening, Speaking, Problem Solving, Creativity, Staying Positive, Aiming High, Leadership, and Teamwork. Reports from more than 16, 000 of the children's reflections showed the use and improvement of essential skills, which they need to be work-ready, have higher life satisfaction, and secure higher income (Nolan et al., 2023).

Further significant outcomes of participation in the CU, across a range of measures parallel to academic outcomes were found by Rose and Rose (2018). Findings included the CU playing a role in engaging learners who may have less enthusiasm for learning. This in turn was deemed to be linked to the experience of trying something new and/or the sense of reward for participation in activities. This opportunity to participate in a wide range of activities also influenced the aspirations of the children involved through broadening experiences. Awareness of the university was raised, including through graduation, particularly among those who reported having no family knowledge/experience. Success in seeding thoughts of higher education has potentially great returns with achievement of a degree found to have 'a profound impact on long-term social mobility' (Shaw et al., 2016, p. 6).

Drawing on Shaw et al.'s (2016) work for the Social Mobility Commission, the Ethnicity, Gender and Social Mobility report states that schools can play a role in reducing or enlarging gaps in socioeconomic status, particularly when ethnicity and gender are considered (p.36). However, the opportunity that schools have to engage with voluntary/unfunded strategies or initiatives to support disadvantaged learners, such as the CU, is also likely to be influenced by availability of sufficient funding to maintain mandatory/core services and staffing levels. Differences in funding availability across North Wales counties is highlighted in the Local Authority Revenue and Capital Forecast (Welsh Government, 2023). Mark Isherwood (a former North Wales Senedd Member) has highlighted that what is described as an 'outdated funding formula' has left councils, including Flintshire County Council, 'struggling for resources' (deeside.com). The use of Pupil Premium Grants (England) and Pupil Development Grants (Wales) is one way schools may be able to mitigate against these deficits and continue to engage with, for example, the CU, given the evidence base relating to its positive outcomes for disadvantaged children.

The Children's University aims to support children of all backgrounds, yet as stated in its 2023 State of the Nation report, does not collect data on Free School Meal eligibility or on the ethnic background of participants (Nolan et al., 2023, p.38). Instead, it uses public data to look at the school level variances in comparison to national averages with data collected by the Department for Education (which, it should be highlighted, does not report for Wales). The reported data show that there are more white British participants than the national average, with every other ethnic group (aside from Gypsy/Roma) being underrepresented. In the 2024 State of the Nation report, the data are not as detailed. The report shows 31% CU participants come from a minority ethnic background compared to a national average of 37%. For free school meals (FSM), the balance is reversed, with a CU average of 30% compared to 25% national average. With FSM eligibility being an indicator of disadvantage, this indicates a positive move towards recruiting the participants that the CU intends to impact. The report acknowledges that they need to do more to 'meet the needs of children from ethnic minority backgrounds' (Nolan & Duhra, 2024, p. 4).

Demie (2021) reports that Black Caribbean, Mixed white and Black Caribbean, and Gypsy/Roma and Traveller children are overrepresented in exclusion statistics. This highlights opportunity to increase efforts for the CU to engage with learners from underrepresented communities. Mirza and Warwick (2024) note that the ethnic diversity of the UK has increased and is increasing, which makes understanding different opportunities and outcomes for different communities increasingly important. It also highlights the potential to seek to engage children who may particularly benefit from the CU as a potential intervention. It may be useful to explore those who sit within the context of multiple risk factors for disengagement or lower achievement and further investigate the intersections of disadvantaging factors.

Research conducted by Lightbody, Siann, Stocks and Walsh cited in Morris et al. (2021) states that strong sex differences existed with boys being more likely to dislike school than girls, conforming to previous research. This potentially highlights the importance of engaging boys as a crucial part of achieving the goal of levelling the playing field. Building on this, Morris et al.'s own study further confirmed the connection between school enjoyment and improved educational outcomes. They found that girls were more than twice as likely to report enjoying school than boys. Though it should be noted that the question of enjoyment was asked of 6 year-olds, the outcomes were found to be significant at the conclusion of compulsory schooling. Perhaps most significantly, they identify school enjoyment as a promising intervention target for improving educational outcomes, noting the effects of enjoyment on achievement were almost as large as differences by parental occupation, social class, and sex (Morris et al., 2021).

Also important in the wider context of education, and in this "post-covid" era, Nolan and Howard (2022, p. 31) cite evidence of the potential positive effects on mental health and wellbeing of participating in CU activities. They note that those participating in Scouts and Guides report fewer incidences of anxiety or mood disorders (Dibben et al., 2016) and that involvement in organised physical activities saw higher attainment and better social and emotional outcomes (Tanner & Todd, 2016).

The pilot study evaluation of the Wrexham and Flintshire CU highlighted that it was the social element of activities that were reported as being some of the most enjoyable aspects of participating (Fuller & Edwards, 2023). Although, also relevant to supporting attainment,

these positive indicators on social and emotional outcomes indicate the importance of CU activities beyond bridging skills and attainment gaps and providing opportunities for educating in a way that centralises human experience and individual progression. This is particularly pertinent in the context of the Curriculum for Wales, with its focus on progress and process rather than product/outcome as in English National Curriculum.

1.1. Present study

In line with the CU aims outlined, the NWCU aims to provide children and young people with equal access to extracurricular activities and develop a lifelong love of learning that can fuel aspirations. The CU aligns with the priorities in the Renew and Reform Education Covid-19 recovery plan, which exemplifies community engagement projects that respond to identified local and regional needs.

Wrexham University is internationally recognised for its Civic Mission activities stemming from a co-produced goal to 'end social inequality across North Wales by 2030' (see chapter 5 in OECD, 2023, pp. 167–180). Wrexham University seeks to be a 'useful university', pursuing a whole systems approach to working with partners and communities.

In 2022, Wrexham University undertook a Pilot Case Study of Children's University in Wrexham and Flintshire, which showed a positive impact on enjoyment of school, learning new things, and working with others. Over 90% (66) of children said they would join CU again if asked, and school leaders commented on the impact on children's confidence, social interactions, and creative skills (Fuller & Edwards, 2023). However, there were certain challenges that needed addressing, such as barriers for children (costs, travel, lack of access to technology at home), and to school leaders (CU technological infrastructure, and more support needed for children with ALN).

Consequently, the aim of this study is to report on the launch of the North Wales Children's University. This new collaboration with Bangor University aims to sustain and grow the Children's University Hub at Wrexham University that will enable and support the East, Central, and West areas of North Wales. A new collaboration model hopes to develop aspirations and support implementation of the new curriculum with a 'community wide approach'. Before this study began, some of the challenges outlined in the Wrexham and Flintshire pilot were addressed, such as an exponential increase in learning destinations to give the children more opportunities that did not require travel and/or home technology. The Children's University Project Manager also provided information to school leaders in advance regarding the children who may most benefit from being invited to participate in CU (e.g. those from socioeconomically disadvantaged backgrounds and children with ALN).

As many other researchers have focused on academic outcomes, our research questions investigated whether participating in Children's University activities led to improvements on children's non-cognitive outcomes, trying new things, and enjoyment of learning for pupils across North Wales. In addition, because studies have consistently indicated that enjoyment of learning is stratified by sex, ethnicity, and social class/socioeconomic factors (Stopforth et al., 2024), we also explored these in the context of the reach of NWCU via local authority.

1.1.1. Research question

What is the impact of CU on participants? To establish this by gathering pre- and post-pilot data on extracurricular activity participation.

1.1.2. Hypotheses

1. There will be sex and ethnicity differences on the variables (a) 'enjoyment of learning', (b) 'trying new things', and (c) 'non-cognitive outcomes' at Time 1 and Time 2.
2. There will be differences between Local Authority scores on the variables (a) 'enjoyment of learning', (b) 'trying new things', and (c) 'non-cognitive outcomes' at Time 1 and Time 2.
3. Children will show improved scores on the variables (a) 'enjoyment of learning', (b) 'trying new things', and (c) 'non-cognitive outcomes' from Time 1 to Time 2.

2. Method

North Wales Children's University is an extension of Wrexham University's Children's University Pilot (Fuller & Edwards, 2023), branching out to cover all North Wales. Several new Project Manager and Administrator posts were created to ensure the CU operational team had sufficient staff to reach all counties and the target number of schools and pupils.

2.1. Design

Due to time, funding, and staff constraints, this study could not deliver a full scale randomised controlled trial or extensive delivery evaluation. The Children's University team was already commissioned by HEFCW (now Medr) to deliver the Children's University project to the children and the programme design finalised. The team later enlisted researchers (first and second authors) to explore the impact of the scheme. Consequently, the design for this part of the project was a Time 1 and Time 2 survey to the children, 4 months apart, to gain a snapshot of two time points and also detect potential differences in scores from Time 1 to Time 2 for children who were enrolled and completed activities in the Children's University.

The children were given a 'settling in' questionnaire, which asked basic demographic questions, open-ended response questions about learning and activities, questions on 'enjoyment of learning', 'trying new things', and then a scale of Non-Cognitive Outcomes (NCOs). After the CU activity period, all schools that could take part again gave their children a post-intervention survey repeating Time 1 variable questions, with some new schools wanting to take part then as well.

2.2. Participants

2.2.1. Schools and pupils

As per funding requirements, the CU aimed to engage with a minimum of nine of North Wales' 50 state secondary schools (18%; 3 from East, 3 from Mid and 3 from West Wales) as well as a minimum of 10% of the region's 335 primary schools, reaching over 1000 pupils. The CU team reached out to all schools in each North Wales county, having already established a link with some Directors of Education who sat on the Programme Board for CU; interest and uptake varied between counties, with some schools participating in the CU activities but not completing the research surveys. In Wood's (2024) report of the North Wales Children's University Pilot to Medr, there are further demographic details of the children who signed up to Children's University (not all who signed up completed the research aspect). Notably, the majority of participating children lived in the least deprived decile areas in North Wales. The communications sent to schools asked for headteachers to consider which children to pick for the scheme based on several factors, such as child in receipt of free school meals, or child with ALN[1]. This purposeful method aimed to align with the overarching Children's University aim for a 'level playing field of opportunity', by asking teachers to consider children that may benefit the most, thus working towards a more equitable learning environment. The evaluation team

[1] Children entitled to Free School Meals, are Looked After, have Additional Learning Needs, Gypsy/Roma Traveller, children with English as an Additional Language (EAL), children with disabilities, Black and Minority ethnic children, children in families where no parent/carer has been to university, young carers.

did not have access to information regarding the criteria applied by individual schools. Wood's (2024) report outlines that 31.6% of the those who signed up to participate in Children's University were residents of the most deprived areas of North Wales using the Welsh Government's relative deprivation measure for small areas. This indicates that some children from socioeconomically disadvantaged backgrounds participated.

The final sample of children that completed the research surveys included 802 children at Time 1 and 429 at Time 2. There were 35 schools that delivered the surveys to children enrolled in CU, with some completing T1 and T2, some only completing T1, and a few only completing T2 (Table 1). Some teachers selected entire classes to participate, some selected individuals from different classes, and others opened the scheme up on a first-come first-served basis to the children. Some schools signed up but then did not engage; school numbers, locations, and pupil numbers are listed in Table 1.

The children who completed the CU questionnaire at Time 1 (402 female, 389 male, 1 blank case, 10 other), were aged between 8 and 14 years, covering six local authorities in North Wales. At Time 1, most children were white (n = 712, 89%), with 4% belonging to a mixed ethnic group, 3% were Asian or Asian British, 1% were Black or Black Caribbean/African, 1% were from another ethnic group, and 3% did not answer the question.

The 429 children who completed the CU questionnaire at Time 2 (207 female, 220 male, 1 blank case, 1 other) covered the six local authorities in North Wales. NB, three different schools were surveyed at Time 2, and not all Time 1 schools were surveyed again due to schools' logistical issues. At Time 2, most children were white (n = 389, 90.7%), with 2.8% belonging to a mixed ethnic group, 3% were Asian or Asian British, 1.2% were Black or Black Caribbean/African, and 1.9% did not answer the question.

2.3. Outcome measures

This study measured how much the children (1) enjoyed learning (in general and online-only), (2) liked trying new things, and (3) fared on a range of non-cognitive outcome items. In the first Pilot study in Wrexham (Fuller & Edwards, 2023), a questionnaire was designed to capture numbers 1 and 2; existing CU studies were consulted, and questions were taken from these (see Wolverhampton CU, Rose & Rose, 2018). Some of these questions were used in the current study as they were direct and easy to understand. The non-cognitive outcomes scale was borrowed from Durham University's work on the Children's University, which had been validated multiple times (Gorard et al., 2017). It is a scale comprising of single-item questions answered from 1 to 10, covering concepts including self-esteem, teamwork, communication, motivation, confidence, resilience, civic-mindedness, and future intentions. Gorard et al. (2017) state that items were taken from validated instruments, their own previous research, and professional advice. Items were chosen for their known malleability in individuals and those classed as important facets by key educationalists to consider when thinking about children's non-academic outcomes. The authors also tested the items for readability with 8-year-olds (Year 4 in the UK), but following Fuller & Edwards' first pilot, our response anchors were faces as well as numbers, ranging from a very unhappy face up to a very happy face. Faces were chosen to make responding clearer and easier for younger children than a numeric scale alone. Other qualitative questions were included in the survey to investigate the types of activities children enjoyed and what they were looking forward to; these are not reported here.

The surveys also asked questions (with answers that could not change from Time 1 to Time 2) to generate an alphanumeric code that could be used to match Time 1 and Time 2 responses. These questions asked for sex, birth month, first initial of first middle name (or Z if no middle name), first initial of mother's (or primary carer's) first name, and number of older siblings (or 0 if no older siblings).

Table 1
School number, Local Authority, and pupil participant data.

Local Authority	Number of Schools	Number of Pupils T1	Number of Pupils T2
Denbighshire	**5**	124 (15.5%)	46 (10.7%)
Conwy	**2**	42 (5.2%)	8 (1.9%)
Gwynedd	**3**	58 (7.2%)	53 (12.4%)
Anglesey	**6**	130 (16.2%)	107 (24.9%)
Wrexham	**10**	249 (31.0%)	91 (21.2%)
Flintshire	**9**	199 (24.8%)	124 (28.9%)

2.4. Procedure

2.4.1. Administration of the surveys

Ethical approval was granted by the Wrexham Research Ethics Committee to collect data for research purposes during the CU activities that were already taking place. The Children's University activities started with the first questionnaire in September 2023, and the post-intervention questionnaire was given in January 2024. The operational CU team collected the data. Printed questionnaires were delivered to schools by the CU staff members who either completed the survey with the children, providing guidance to the school pupils present and taking away the completed forms, or dropped them off at Reception to be passed onto the class teacher for completion later. This flexibility in data collection was offered to schools to increase engagement with the survey. Written instruction was provided to support the class teacher in guiding the pupils through the survey. Staff received training prior to school visits allowing for the survey to be consistently delivered, however, this was not the preferred method for some schools due to internal logistics. The CU operational staff were trained on ethical protocol of how to respond to a child who may be distressed, but due to logistical issues, no researchers were present whilst the surveys were conducted with the children. To gather the operational staff views on the process of conducting the questionnaires with the children, a reflective diary feature was set up on Microsoft Forms and emailed to them each week where they could record experiences of the implementation. Other means of evaluating the processes of the CU were also conducted, such as youth forums and interviews with CU staff and teachers; these are all reported elsewhere (Wood, 2024).

The completed surveys were returned to the Children's University base office in Wrexham, and paid student ambassadors manually transferred the children's data into SPSS with the supervision of the Children's University Lead Project Manager (third author).

3. Data analysis

3.1. Normality

Data were analysed using SPSS V. 26. The data were not normally distributed at either Time point, with most variables presenting negative skew and kurtosis, thus violating assumptions for parametric tests. A Kolmogorov-Smirnov test of normality was significant ($p < .001$) for each continuous variable, indicating a non-normally distributed sample. Although this is common in large samples (Pallant, 2020, p.63), examining the histograms and boxplots showed evident non-normality; therefore, non-parametric tests were used for analyses.

4. Results

A summary of significant results corresponding to the hypotheses can be seen in Table 2, and a breakdown of tests and results follow. Ethnicity data was not compared due to insufficient variance.

Table 2
Summary of significant findings in relation to hypotheses.

Hypotheses	Findings
1. Are there sex and ethnicity differences on the variables (a) 'enjoyment of learning', (b) 'trying new things', and (c) 'non-cognitive outcomes' at Time 1 and Time 2?	**Enjoyment of Learning** Girls scored higher than boys on 'enjoyment of learning' at Time 1. Boys scores higher than girls on 'enjoyment of learning online' at Time 1. **Trying New Things** No significant differences were found between sex and 'trying new things'. **Non-Cognitive Outcomes** Girls' scores were significantly different than boys, clustering around the higher scores, on the NCO item 'I try to understand other people's problems' at Time 1. At Time 2, girls scored significantly higher on the NCO items, 'I try to make my local area a better place', and 'I try to understand other people's problems'.
2. Are there differences between Local Authority scores on the variables (a) 'enjoyment of learning', (b) 'trying new things', and (c) 'non-cognitive outcomes' at Time 1 and Time 2?	**Enjoyment of Learning** There were significant differences between Flintshire and Denbighshire, Flintshire and Anglesey, Flintshire and Gwynedd, Flintshire and Wrexham, Conwy and Wrexham on the variable 'enjoyment of learning' at Time 1, with Gwynedd and Wrexham scoring higher. At Time 2, significant differences were detected between Denbighshire and Wrexham, Anglesey and Flintshire, and Anglesey and Wrexham, with Flintshire and Wrexham scoring higher. **Trying New Things** At Time 1, significant differences were detected between Flintshire and Anglesey, Flintshire and Wrexham, and Denbighshire and Wrexham, with Wrexham and Anglesey scoring higher. At Time 2, a significant difference was detected between Anglesey and Wrexham, with Wrexham scoring higher. **NCOs** There were statistically significant differences on some NCOs between local authorities, see Tables 6–8 for details.
3. Will children show improved scores on the variables (a) 'enjoyment of learning', (b) 'trying new things', and (c) 'non-cognitive outcomes' from Time 1 to Time 2?	**Enjoyment of Learning** Split by local authority, only Anglesey had a significant difference from Time 1 to Time 2, with 'enjoyment of learning' scores reducing. **Trying New Things** For the whole sample, there was a significant difference between Time 1 and Time 2 for 'trying new things', with scores reducing. Split by sex, there were significant differences for girls and boys on this variable, with both reducing from Time 1 to Time 2. A significant change from Time 1 to Time 2 was detected for Anglesey and Wrexham, with both scores reducing. **Non-Cognitive Outcomes** The NCOs 'like meeting new people', 'once started I like to finish', and 'I feel happy most days' showed significant reductions from Time1 to Time 2 for the whole sample. A statistically significant change in 'like meeting new people' for girls was detected, with the scores reducing from Time 1 to Time 2, and for boys on 'I can do most things if I try'. Similarly, 'Once started I like to finish' reduced for girls, and 'I feel happy most days' reduced for boys. Some NCOs

Table 2 (*continued*)

Hypotheses	Findings
	significantly reduced from Time 1 to Time 2 for local authority, see Tables 10–12.

4.1. Results from hypothesis 1

Ethnicity data were not compared because there was insufficient variability, with most of the sample being white. See Discussion for further comments. Significant differences are reported only.

4.1.1. Time 1 & 2: enjoyment of learning x sex

A Mann-Whitney *U* test showed that there was a significant difference between girls' and boys' enjoyment of learning at Time 1. Girls' median score was higher than boys' indicating a greater enjoyment of learning. There was also a significant difference between girls' and boys' enjoyment of *online* learning at Time 1. Boys' median score was higher than girls indicating a greater enjoyment of online learning at Time 1. At Time 2, the results were the same (see Table 3).

4.1.2. Time 1 & 2: NCOs x sex

The questions 'I like to be told exactly what to do' and 'I am often afraid to try new things' were removed from all analyses, as the data was too inconsistent to be valid. Notably, these were the reverse-scored questions, suggesting misunderstanding when answering.

Girls' and boys' scores on the 'non-cognitive outcomes' were compared independently for Time 1 and Time 2. The only NCO that was significant at Time 1 was 'I try to understand other people's problems'. A Mann-Whitney *U* test was significantly different between girls and boys, and although both groups had the same Median score, girls scores clustered at higher values.

At Time 2, there was a significant difference for 'I try to make my local area a better place' between girls and boys, with girls scoring higher, indicating a greater agreement with trying to make the local area a better place. Also, 'I try to understand other people's problems' was significant with girls scoring higher again (Table 4).

4.2. Results from hypothesis 2

4.2.1. Time 1 & 2: enjoyment of learning x LA

At Time 1, a Kruskal-Wallis H test showed that there was a statistically significant difference in 'enjoyment of learning' between the local authorities. Pairwise comparisons with Bonferroni correction showed significant differences between Flintshire and Denbighshire, Flintshire and Anglesey, Flintshire and Gwynedd, Flintshire and Wrexham, Conwy

Table 3
Medians, significance, and effect sizes of enjoyment of learning for boys and girls at T1 and T2.

Time 1	**Girls (n = 402)**	**Boys (n = 389)**	**Difference**	**Sig**	**Effect**
	Md	Md	U	p	r
Enjoyment of Learning	8	7	68484.50	.002	.11
Enjoyment of Learning online	7	8	65295	<.001	.14
Time 2	**Girls (n = 207)**	**Boys (n = 220)**	**Difference**	**Sig**	**Effect**
	Md	Md	U	p	r
Enjoyment of Learning	8	7	17998	< .001	.18
Enjoyment of Learning online	7	8	18624	.001	.16

Table 4
Medians, significance, and effect sizes on significant NCOs for T1 and T2.

NCOs T1	Girls (n = 402)	Boys (n = 389)	Difference	Sig	Effect
	Md	Md	U	p	r
I try to understand other people's problems	8	8	69705	.007	.09
NCOs T2	**Girls (n = 207)**	**Boys (n = 220)**	**Difference**	**Sig**	**Effect**
	Md	Md	U	p	r
I try to make my local area a better place	9	8	20329	.049	.10
I try to understand other people's problems	9	8	18383.50	< .001	.17

and Wrexham.

There was also a statistically significant difference in 'enjoyment of *online* learning' between the different local authorities at Time 1. Pairwise comparisons with Bonferroni correction showed significant differences between Flintshire and Wrexham.

At Time 2, there was a statistically significant difference in 'enjoyment of learning'. Pairwise comparisons with Bonferroni correction showed significant differences between Denbighshire and Wrexham, Anglesey and Flintshire, and Anglesey and Wrexham (Table 5).

4.2.2. Time 1 & 2: trying new things x LA

A Kruskal-Wallis H test showed that there was a statistically significant difference in 'trying new things' between the different local authorities at Time 1. Pairwise comparisons with Bonferroni correction showed significant differences between Flintshire and Anglesey, Flintshire and Wrexham, and Denbighshire and Wrexham.

Table 5
Significance, medians, and effect sizes for the local authorities at T1 and T2 for enjoyment of learning.

Time 1	H (df)	Sig.	Effect (η^2)
Enjoyment of Learning	57.53 (5)	<.001	.07
	Local Authority	**N**	**Md**
	Flintshire	199	6
	Denbighshire	124	7
	Conwy	42	7
	Anglesey	130	7
	Gwynedd	58	8
	Wrexham	249	8
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
Enjoyment of Learning Online	16.52 (5)	.006	.02
	Local Authority	**N**	**Md**
	Flintshire	199	7
	Denbighshire	124	8
	Conwy	42	6.5
	Anglesey	130	8
	Gwynedd	58	7
	Wrexham	249	8
Time 2	**H (df)**	**Sig.**	**Effect (η^2)**
Enjoyment of Learning	22.374 (5)	<.001	.05
	Local Authority	**N**	**Md**
	Flintshire	124	8
	Denbighshire	46	7
	Conwy	8	7
	Anglesey	107	7
	Gwynedd	53	7
	Wrexham	91	8

Table 6
Significance, medians, and effect sizes for the local authorities at T1 and T2 for trying new things.

Time 1	H (df)	Sig.	Effect (η^2)
Trying new things	39.84 (5)	<.001	.05
	Local Authority	**N**	**Md**
	Flintshire	195	8
	Denbighshire	123	8
	Conwy	42	8.5
	Anglesey	129	9
	Gwynedd	57	8
	Wrexham	249	9
Time 2	**H (df)**	**Sig.**	**Effect (η^2)**
Trying new things	13.42 (5)	.02	.03
	Local Authority	**N**	**Md**
	Flintshire	123	8
	Denbighshire	46	8
	Conwy	8	7
	Anglesey	107	8
	Gwynedd	53	8
	Wrexham	91	9

Table 7
Paired significant differences between local authorities.

NCO	Significant differences between LAs T1	Significant differences between LAs T2
Good at explaining ideas	Conwy and Anglesey Conwy and Wrexham Conwy and Gwynedd Flintshire and Anglesey Flintshire and Wrexham Flintshire and Gwynedd	
Like meeting new people	Flintshire and Wrexham	After Bonferroni correction, no pairwise comparisons were significant.
Work with someone with different opinions	Gwynedd and Anglesey Flintshire and Anglesey.	
I can do most things if I try	Conwy and Wrexham Flintshire and Wrexham	Wrexham and Anglesey
Once started I like to finish	After Bonferroni correction, no pairwise comparisons were significant	
Try to make my local area a better place	Flintshire and Gwynedd Flintshire and Wrexham Flintshire and Anglesey	
Feel happy most days	Conwy and Wrexham Conwy and Gwynedd Flintshire and Gwynedd.	
Try to understand other people's problems	After Bonferroni correction, no pairwise comparisons were significant	After Bonferroni correction, no pairwise comparisons were significant
Know where to go for help	Conwy and Anglesey Flintshire and Anglesey	

There was also a statistically significant difference in 'trying new things' between the local authorities at Time 2. Pairwise comparisons with Bonferroni correction showed significant differences between Anglesey and Wrexham (Table 6).

4.2.3. Time 1 and 2: NCOs x LA

A Kruskal-Wallis H test showed that there was a statistically significant difference between local authorities at Time 1 on some NCOs. At Time 2, Kruskal-Wallis H tests showed significant differences on four NCOs only. See Tables 7–9.

Table 8
Significance, medians, and effect sizes for T1 local authority NCOs.

Time 1	H (df)	Sig.	Effect (η^2)
NCO: Good at explaining ideas	38.66 (5)	<.001	.05
	Local Authority	**N**	**Md**
	Flintshire	199	5
	Denbighshire	124	6
	Conwy	42	5
	Anglesey	130	6.5
	Gwynedd	58	7.5
	Wrexham	249	7
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Like meeting new people	21.38 (5)	.001	.03
	Local Authority	**N**	**Md**
	Flintshire	199	7
	Denbighshire	124	7
	Conwy	42	6
	Anglesey	130	7
	Gwynedd	58	7.5
	Wrexham	249	8
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Work with someone with different opinions	22.22 (5)	<.001	.03
	Local Authority	**N**	**Md**
	Flintshire	199	6
	Denbighshire	124	6
	Conwy	42	6
	Anglesey	130	8
	Gwynedd	58	6
	Wrexham	249	7
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: I can do most things if I try	23.93 (5)	<.001	.03
	Local Authority	**N**	**Md**
	Flintshire	199	7
	Denbighshire	124	8
	Conwy	42	6.5
	Anglesey	130	8
	Gwynedd	58	8
	Wrexham	249	8
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Once started I like to finish	17.37 (5)	.004	.02
	Local Authority	**N**	**Md**
	Flintshire	199	7
	Denbighshire	124	7
	Conwy	42	7
	Anglesey	130	8
	Gwynedd	58	9
	Wrexham	249	8
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Try to make my local area a better place	31.06 (5)	< .001	.04
	Local Authority	**N**	**Md**
	Flintshire	199	7
	Denbighshire	124	8
	Conwy	42	8
	Anglesey	130	9
	Gwynedd	58	8.5
	Wrexham	249	9
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Feel happy most days	23.84 (5)	<.001	.03
	Local Authority	**N**	**Md**
	Flintshire	199	7
	Denbighshire	124	7
	Conwy	42	6
	Anglesey	130	8
	Gwynedd	58	9
	Wrexham	249	8
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Try to understand other people's problems	16.61 (5)	.005	.02
	Local Authority	**N**	**Md**
	Flintshire	199	7
	Denbighshire	124	8
	Conwy	42	7
	Anglesey	130	8
	Gwynedd	58	8
	Wrexham	249	9
Time 1	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Know where to go for help	17.35 (5)	.004	.02
	Local Authority	**N**	**Md**
	Flintshire	199	8
	Denbighshire	124	8
	Conwy	42	6.5
	Anglesey	130	9
	Gwynedd	58	9
	Wrexham	249	8

4.3. Results from hypothesis 3[2]

4.3.1. Time 1 and 2 comparison: enjoyment of learning

For the individuals who had a T1 and T2 data point, split by LA, a Wilcoxon signed-rank test found a significant change for Anglesey ($n = 70$; $Z = -2.50$, $p = .012$, $\eta^2 = .09$; Mdn = 8 pre- and 7 post-CU), showing enjoyment of learning *reducing* over time.

4.3.2. Time 1 and 2 comparison: trying new things

For individuals who had a T1 and T2 data point, a Wilcoxon signed rank test showed a significant difference between Time 1 and Time 2 for 'trying new things' ($N = 233$; $Z = -4.638$, $p < .001$, $\eta^2 = .09$; Mdn 9 pre- and 8 post-CU); median scores had reduced over time. Split by sex, there was a statistically significant change in 'trying new things' for girls, $n = 115$ ($Z = -3.44$, $p = .001$, $\eta^2 = .10$; Md = 9 pre- and 8 post-CU), and for boys ($n = 118$; $Z = -3.04$, $p = .002$, $\eta^2 = .08$; Md = 9 pre- and 8 post-CU), with both scores reducing over time.

For Local Authority, there was only a significant change for Anglesey ($n = 70$; $Z = -3.96$, $p < .001$, $\eta^2 = .22$; Md = 9 pre- and 8 post-CU), and Wrexham ($n = 68$; $Z = -4.104$, $p < .001$, $\eta^2 = .25$; Md = 10 pre- and 8 post-CU), with both scores reducing.

4.3.3. Time 1 and 2 comparison: NCOs

For the individuals who had a T1 and T2 data point, the NCOs 'like meeting new people', 'once started I like to finish', and 'I feel happy most days' showed significant changes from Time1 to Time 2 (Table 10).

[2] Significant results from T1 to T2 comparisons are presented only.

Table 9
Significance, medians, and effect sizes for T2 local authority NCOs.

Time 2	H (df)	Sig.	Effect (η^2)
NCO: Like meeting new people	12.09 (5)	.034	.03
	Local Authority	**N**	**Md**
	Flintshire	124	7
	Denbighshire	46	7
	Conwy	8	6
	Anglesey	107	7
	Gwynedd	53	7
	Wrexham	91	9
Time 2	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: I can do most things if I try	12.57 (5)	.028	.03
	Local Authority	**N**	**Md**
	Flintshire	124	8
	Denbighshire	46	7
	Conwy	8	6
	Anglesey	107	8
	Gwynedd	53	8
	Wrexham	91	9
Time 2	**H (df)**	**Sig.**	**Effect (η^2)**
NCO: Try to understand other people's problems	13.78 (5)	.017	.03
	Local Authority	**N**	**Md**
	Flintshire	124	8
	Denbighshire	46	7.5
	Conwy	8	6.5
	Anglesey	107	8
	Gwynedd	53	8
	Wrexham	91	9

Table 10
Significance, means, and effect sizes for NCOs from T1 to T2.

	Time 1 Md	Time 2 Md	Z	Sig.	η2
Like meeting new people	8	7	−2.274	.023	.20
Once started I like to finish	9	8	−2.278	.023	.02
I feel happy most days	8	8	−2.918	.004	.04

Table 11
Significance, means, and effect sizes for NCOs from T1 to T2 split by sex.

	Time 1 Md	Time 2 Md	Z	Sig.	η2
Like meeting new people (girls, n = 115)	8	7	−2.573	.010	.06
I can do most things if I try (boys, n = 118)	9	8	−2.763	.006	.07
Once started I like to finish (boys, n = 118)	8	8	−2.118	.034	.04
I feel happy most days (boys, n = 118)	8	7	−2.722,	.006	.06

Split by sex, a Wilcoxon signed-rank test showed a statistically significant change in 'like meeting new people' for girls, but not for boys. No statistically significant change was detected on 'I can do most things if I try' for girls, but it did for boys. No statistically significant change was detected on 'Once started I like to finish' for girls, but it did for boys. And no statistically significant change was found on 'I feel happy most days' for girls, but it did for boys (Table 11).

Split by LA, some NCOs significantly differed from Time 1 and Time 2. See Table 12 for significant results.

Table 12
Significance, means, and effect sizes for NCOs from T1 to T2 split by LA.

	Time 1 Md	Time 2 Md	Z	Sig.	η2
Good at explaining (Gwyn. n = 42)	8	7	−2.313	.021	.13
Work with someone (Gwyn. n = 42)	6	7	2.047	.041	.10
Once started I like to (Ang. n = 70)	9	7	−2.690	.007	.10
Like meeting new (Flint. n = 38)	7	6	−2.476	.013	.16
Try make my local area (Flint. n = 38)	8	7	−2.846	.004	.21
Feel happy most days (Flint. n = 38)	7	6	−2.325	.020	.14

5. Discussion

5.1. Enjoyment of learning

At Time 1 and 2, girls' median scores were higher than boys' indicating a greater enjoyment of learning overall. However, boys' median scores were higher than girls for online learning. Girls reporting greater enjoyment of learning than boys is consistent with previous research, including that by Meyer and Schlesier (2022) and Morris et al. (2021), which identified enjoyment of school as being strongly linked to later achievement, also noting its relative modifiability. Stopforth et al. (2024) further found strong evidence of clear gender differences, with boys having a 4-percentage point lower probability of liking school compared to girls. This does seem to suggest that by engaging children with CU who identify or are identified as not enjoying school or learning, offers an opportunity of meeting the aims of the CU to overcome disadvantage by creating opportunities to develop more positive attitudes towards learning. It also indicates how boys in particular may be encouraged to participate more positively, though further investigation of the specifics of what constitutes 'online learning' would be needed. Consideration would also need to be given regarding access to the technology to complete these activities as the initial Pilot study (Fuller & Edwards, 2023) recommended a thoughtful approach to activities requiring technology, as access was not universal and there was a perceived need to close the gap.

Time 1 saw significant differences between some of the LAs for overall learning. Flintshire scored significantly lower than Denbighshire, Anglesey, Gwynedd, and Wrexham. Conwy also scored significantly lower than Wrexham. For learning online, Flintshire scored significantly lower than Wrexham. At Time 2, Denbighshire scored significantly less than Wrexham, and Anglesey scored significantly less than Flintshire and Wrexham. The significance of the differences in enjoyment of learning between the local authority areas is noteworthy, suggesting that experiences of learning can change according to local context. Differences of socioeconomic characteristics, educational opportunities, and classroom environments, may contribute to variation in scores. Although Flintshire is relatively economically diverse, some communities experience socioeconomic disadvantage, which may influence children's educational experiences, wellbeing, and engagement. Conversely, Wrexham has some highly deprived areas yet scored higher suggesting that LA-level enjoyment differences are unlikely to be explained purely by deprivation. To draw further conclusions, more detailed data would be needed.

5.2. Trying new things

At Time 1 for 'trying new things', there were significant differences between Local Authorities with Flintshire scoring significantly less than

Anglesey and Wrexham and Denbighshire scoring significantly less than Wrexham. At Time 2, Anglesey scored significantly less than Wrexham. Much like the differences found in enjoyment of learning between counties, this could be attributed to local initiatives or in individual school values and approaches to learning. A willingness to try new things indicates a willingness to take risks in learning and may be connected to confidence and mental and emotional wellbeing. Previous research suggests that willingness to engage in unfamiliar activities may be influenced by curiosity, self-efficacy, and the extent to which learning environments can support exploration via structural and individual components (such as teaching style; Inayat & Ali, 2020). Differences in local opportunities and implementation of these could be one explanation for variation between local authorities. Again, with Wrexham scoring significantly higher and being Flintshire's neighbouring county, the results indicate that local contexts are complex, and deprivation alone cannot account for the differences.

Research potential for further study into the effects on participation with CU was also noted in the Fuller and Edwards (2023) pilot, and this could form part of an exploration into the differing outcomes for each county to note correlations between engagement with programmes and strategies to support wellbeing (e.g. myHappymind, which some schools engage with) and attitudes towards elements of learning, such as those we have measured.

5.3. NCOs

At Time 1 and 2, we found significant differences on some NCOs between some Local Authorities (see Tables 6 and 7). As mentioned, these differences between local authorities may once more be related to differences between individual schools, teachers, and children. Each local authority must follow the same curriculum, but the way schools choose to teach, and individual teacher preferences, may differ between local authorities.

It was noticeable that Wrexham, Flintshire, Denbighshire, and Anglesey had the most children take part in the CU, suggesting that the previous Wrexham and Flintshire CU had a memorable impact on the community, so much so that schools decided to participate again.

Furthermore, an evident pattern across the data is that Flintshire scored significantly lower on many items, followed jointly by Conwy, Gwynedd, and Anglesey, indicating that Flintshire children may not be drawing as much benefit from participating in CU as other counties. National data on gross disposable household income puts Flintshire above other North Wales counties though (Regional Gross disposable household income, gov.uk), suggesting that the differences may be more localised rather than stemming from a broader financial or public health perspective. Variations raise questions about whether opportunities provided through CU are experienced equally across contexts. Previous research shows that development of non-cognitive outcomes or social and emotional skills is shaped by access to enrichment activities, supportive environments, and the quality of implementation of interventions (Durlak & DuPre, 2008; OECD, 2021; Siddiqui et al., 2019).

At Time 1, girls scored higher on ‘I try to understand other people's problems'. At Time 2, girls scored higher on ‘trying to make the local area a better place’ and ‘I try to understand other people's problems'. This result is no surprise, considering that girls are often socialised to adopt caregiving roles based on long-standing gender norms (Mesman & Groeneveld, 2018), and this role follows girls into adulthood; for example, show that daughters were the main caregivers amongst older parents' Batur et al. (2022)informal care networks. Such differences are likely to reflect a complex interaction of developmental and social factors, included gendered expectations around interpersonal behaviour, which become apparent within the data as CU includes opportunities for social and community engagement. Consequently, the findings may display differences in how children engage and respond to the opportunities available to them to develop social responsibility (Siddiqui et al., 2019).

5.4. Time 1 to time 2 comparison

For the T1 to T2 comparison of the significant results, all scores had reduced from T1 to T2 except ‘work with someone new’ for Gwynedd. Although not what we expected, the NCO scores could have reduced because of increased self-awareness over time. Children may have developed better understanding of the questions asked and evaluated themselves more critically. Based on positive outcomes from other CU projects, it is unlikely that CU caused children's outcomes to worsen. What is more likely is that the scores represent response shift, where the intervention has increased children's knowledge of the constructs being measured (such as confidence and civic mindedness) and so they may have used different internal standards when completing the questions at Time 2, resulting in lower self-ratings despite any genuine development.

It is also interesting to consider the differences between the English and the Welsh context, where England's educational system is more goal-focused and Wales cherishes the journey rather than just the end product. This Welsh factor offers dissonance with the CU method of learning that requires children to collect stamp codes in order to ‘graduate’ at a university. Perhaps children at Welsh schools participating in CU are more focused on the learning and less on the regimented collection of stamps.

Surprisingly, participating children were already scoring highly on all measures, and all scores correlated, so there was little improvement to be made if this initial self-scoring was accurate. The children's high scores seemed to suggest that the children we reached were already motivated and doing well. If we reached the disadvantaged and underserved children, scores may have been low at baseline and then changed at Time 2. These findings match the Wrexham and Flintshire pilot: “There was a slight decrease in enjoyment of learning overall, though this downturn was not sustained in the question that linked learning new things to the CU” (Fuller & Edwards, 2023). Moreover, the significant differences of scores reducing may be an artifact or regression to the mean, as there was a shorter time gap than envisioned between Time 1 and Time 2. After only four months, any positive impact of participating in CU may not be fully realised. If children with particularly positive baseline experiences were overrepresented at Time 1, scores may naturally look lower at Time 2 (Shadish et al., 2002). As the Time 2 data did not match Time 1 entirely, we cannot conclude that the findings are due to individual-level changes following participating in CU. However, the absence of consistent improvements does raise important questions about the extent to which short term participation in enrichment translates to measurable outcomes. Research suggests that effectiveness of interventions is influenced by implementation quality, engagement, and context (Durlak & DuPre, 2008).

5.5. Beyond participation: supporting educational Equity

Despite not showing clear improvement in results, this research contributes evidence from a real-world implementation context. Our data show that enrichment interventions operate in messy contexts where outcomes are shaped by complex interactions between participation, context, and children's characteristics. However, it is evident from our results, alongside Roy et al.’s (2025) recent EEF commissioned evaluation, that access and participation alone may not be sufficient to reduce educational inequalities. If the overarching aim of CU is to allow for a ‘level playing field’, but this is not supported by recent studies, the question must be raised as to whether disadvantaged children are being included in the same way as their peers. Consequently, our study contributes to the debate on whether widening access to extra-curricular activities in this structured way is sufficient for the children who need it the most. This paper highlights the importance of giving more consideration to how programmes are designed, implemented, and experienced by different groups of children.

6. Limitations

We acknowledge that this study has limitations, some beyond the control of the researchers. Firstly, there was no control group to compare effects. It may be unethical to withhold an educational intervention from children just to garner a control sample, but in future, a wait-list group or staggered CU delivery may help to alleviate this and secure a control group. Further, there was no way to compare scores between those who did and did not participate; we believe that a comparison like this may show stark differences in scores, which seems contrary to the main aim of the CU of creating a "level playing field of opportunity". As mentioned, most of the children were white and scored highly on all questions at baseline, which suggests that there is more work to be done in identifying children who would benefit most from engagement with the CU.

As the researchers joined the project after its inception, we were limited in the amount of control we had over the process of CU delivery, which was already planned and underway. And as with much education research, we were further constrained by timings, with our convenience sample depending heavily on school calendars, teacher availability, and staff buy-in. Notably, the operational team said there was not as much buy-in from new teachers and schools (those who did not participate in the Wrexham and Flintshire pilot), presumably because the new schools might not have heard of CU before being approached. Perhaps a more comprehensive communications strategy would help to improve the visibility of the Welsh CU in future. Additionally, there was a 46.5% attrition rate from Time 1 and Time 2, and not all the same children participated at Time 1 and Time 2, limiting our paired longitudinal sample. We believe logistical issues prevented stricter control over participating schools at both time points, with schools being very busy and having limited time to spend on voluntary activities. Further still, although non-parametric tests are good with small samples, the variables we examined need a more representative sample per area and any significant results, especially for LA from T1 to T2, should be appraised accordingly.

Lastly, we acknowledge the shortcomings of using single item questions to measure an entire construct. We are cautious of drawing solid conclusions based on the NCO scale, even though other researchers have had success using the scale (e.g., Gorard et al., 2017). It is possible that we tried to measure too many variables at once, reducing the likelihood of detecting real differences between them, and increasing the likelihood of impacts being conflated across factors.

7. Conclusion and recommendations

Firstly, the main overarching recommendation is a review of how participants to CU are recruited, to enable the benefits of participation to be extended to children who are disadvantaged and potentially less likely to take part or be chosen to take part in extra-curricular opportunities. The high baseline for enjoyment of learning in our sample may not be indicative of the effects of participating (as indicated in previous research). Participants recruited on a voluntary basis are likely to have higher motivation and higher enjoyment of learning to begin with, whereas children experiencing disadvantage may not. This draws us back to one of the recommendations from the original pilot, which highlighted feedback about the technology gap and ease of participation with online activities at home (Fuller & Edwards, 2023). Any future efforts to widen participation will need to account for this.

Secondly, much of the broader research quite strongly indicates multiple benefits, directly on attainment, and on more tangential but no less important, non-cognitive outcomes, including positive emotions and experiences around learning. This therefore indicates that participating schools, perhaps with clearer guidance from the CU, could select children for participation. This could be linked to Pupil Premium (PP) eligibility, but also teacher observation. By considering the possibilities of PP funding, this could help to counteract some of the wider challenges schools are facing in the budgetary sense (with cuts to resources, including staff). It also encourages a collaborative and community focused approach to supporting children towards more positive outcomes. By considering options for schools to support engagement with CU for disadvantaged pupils, some of the challenges and action points identified in the Fuller and Edwards (2023) pilot could be mitigated.

Thirdly, a greater commitment to understanding and engaging students from minority ethnic and marginalised groups has the potential to support a more inclusive approach to encouraging participation. Our sample was 90% white, overrepresenting white children, and leaving an insufficient sample for conducting comparative statistical tests for ethnicity. Further work would be needed here to understand more about a lack of participation in this CU research, but consideration of diversity and representation within the learning engagement opportunities could be a strand of exploration in future iterations of the North Wales Children's University.

Finally, noteworthy in Children's University publications is the close alignment with the Department for Education (DfE) and the National Curriculum and therefore of education in England. The OFSTED framework, for example, is clearly referenced, whereas the Estyn 2024 framework for inspection, the Ofsted equivalent in Wales, is absent. Likewise, the FSM and ethnicity data is based on those gathered by the DfE for England. This could signify a need to review the alignment of the Children's University aims with those of the Curriculum for Wales. This may also lead to increased focus on engagement and enjoyment (as a means to increasing long term attainment) perhaps alongside the focus on the awards for participation.

Our findings lend little support to the success of CU on the measured variables, which the children were already scoring high on, and, as noted, are consistent with recent findings from Roy et al. (2025). When examining our findings in conjunction with the mixed evidence for CU benefits, they challenge the assumption that participation in extra-curricular activities will necessarily produce immediate measurable change in children's outcomes. However, these results do not detract from the fact that hundreds of North Wales children enjoyed participating and socialising in structured CU activities, which were not part of the curriculum. The children further had the opportunity to join with their families, friends, and the CU operational team to enjoy the graduation experience, which could have broadened their envisioned possibilities for further education.

CRediT authorship contribution statement

Emma D. Harrison: Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Data curation. **Kirsty Fuller:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Data curation. **Natalie Edwards:** Writing – review & editing, Resources, Project administration, Investigation, Funding acquisition, Data curation, Conceptualization.

Ethics declaration

Written informed consent to take part in the study and to publish the article has been obtained from all participants or their legal representatives. The privacy rights of participants have been observed.

This study was performed in compliance with relevant laws, regulatory frameworks and guidelines where the research took place. This study was approved by the Wrexham University Research Ethics Committee. (Approval No. 546)

Data availability

Consent was not requested for sharing research data due to the participants being minors and potentially identifiable within schools.

Declaration of AI use

No AI was used in the writing of this article.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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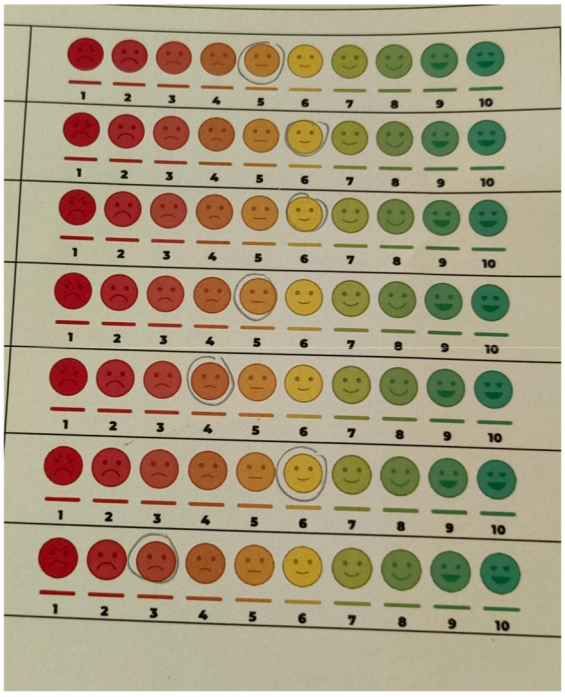
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Appendix

NCO questions

1. I am good at explaining my ideas to other people
2. I like meeting new people.
3. I can work with someone who has different opinions.
4. I can do most things if I try.
5. Once I have started a task I like to finish it.
6. I want to try make my local area a better place.
7. I like to be told exactly what to do.
8. I am often afraid to try new things.
9. I feel happy most days.
10. I try to understand other people's problem.
11. I know where to go for help with a problem.

Photograph of response anchors for NCO questions.



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