

GCU Connect: Using Validated Scales to Measure WP Impact

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Introduction

In 2021/22, GCU Outreach launched a new WP programme of activity, GCU Connect. The project is focused on S5/S6 learners in Glasgow, Lanarkshire, and West Dunbartonshire schools with high proportions of pupils living in SIMD20 postcodes and low rates of HE progression. The programme aims to highlight degree choices at GCU and support learners through the UCAS application cycle, as well as raise expectations for self, build confidence and aspiration for HE progression and support attainment. The project includes large scale, whole cohort workshops focused on degree subject choices and breaking down misconceptions of HE, followed by a series of workshops for pupils applying via UCAS. The project was established to consolidate and expand GCU WP and Outreach's senior phase engagement with partner schools, with the aim of increasing the numbers of schools and pupils involved in WP educational interventions and increasing the number of WP students applying and enrolling on degree programmes at GCU.

The evaluation of the project is still on-going and includes analysis of activity typology and frequency of delivery in partner schools and pupil engagement with frequency of HE applications, and GCU applications and acceptance/progression rates. The evaluation is focused on generating Type 2, empirical evidence of the project as an educational intervention, with a pre and post study conducted using two validated scales: TASO's Access and Success Questionnaire and the Students' Intentions Towards University (SITU) scale. The evaluation approach and methodology is itself a pilot study using the scales and has been designed in two phases. The first phase is a pre and post study with S6 learners in 23/24 – the pre programme measure was taken in May 2023 as S5 learners transitioned into their S6 timetables and the first GCU Connect workshops took place in their schools, with the post programme measure taken in October as the last whole cohort workshops took place. The second phase evaluation is more longitudinal as the first full cycle of the programme commenced with new S5s. Pre measures were taken in May 2023 with the post measure planned to take place in October 2024 with what will then be S6s – this cohort will have then engaged with the S5 and S6 activities giving us insight into the impact of the project as a mechanism for change in relation to the short and medium term aim and objectives of the GCU Connect programme, as a black-box multi-intervention.

Methodology			
What sort of data did your evaluation involve?			
<input type="checkbox"/> Quantitative <input type="checkbox"/> Qualitative <input checked="" type="checkbox"/> Mixed methods			
Which methods did you use?			
<input type="checkbox"/> Questionnaires <input checked="" type="checkbox"/> Validated Scales <input type="checkbox"/> Interviews <input type="checkbox"/> Focus Group(s) <input checked="" type="checkbox"/> Analysis of existing data from your intervention e.g. monitoring data routinely collected <input type="checkbox"/> Analysis of externally sourced data, e.g. bespoke, institutional or publicly available <input checked="" type="checkbox"/> Other			
Which software package(s) if any did you use to assist with your evaluation?			
<input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> SPSS <input type="checkbox"/> NVivo <input type="checkbox"/> Tableau or PowerBI <input type="checkbox"/> Other			
Did your project involve the usage of any statistical methods?			
<input type="checkbox"/> Distribution	<input checked="" type="checkbox"/> Mean	<input type="checkbox"/> Median	<input type="checkbox"/> Mode
<input type="checkbox"/> Range	<input checked="" type="checkbox"/> Standard Deviation	<input type="checkbox"/> Variance	<input type="checkbox"/> Interquartile Range
<input checked="" type="checkbox"/> Paired samples	<input type="checkbox"/> None		
<input type="checkbox"/> Other			
Did you use a theoretical framework for your evaluation?			
<input checked="" type="checkbox"/> Theory of Change <input type="checkbox"/> Existing framework <input type="checkbox"/> Theory from literature			

Method:

The methodology for the GCU Connect evaluation is focused on the use of two validated scales: Students' Intentions Towards University (SITU) and TASO's Access and Success Questionnaire (prospective scales: sense of belonging, academic self-efficacy, university expectations and knowledge). A range of validated measures were considered for the evaluation but the items of each of the questionnaires used best reflected the intended intermediate outcomes of the GCU Connect intervention. Rather than develop our own face-valid questionnaires for evaluation, the use of validated scales meant that the evaluation approach would produce robust and reliable evidence of the intended outcomes of the intervention. Using scales that have gone through the validation process also means that the instruments of evaluation can summarise change (or lack of it) and guide interpretation of results with recognised minimum significant differences pre and post intervention through the published studies on scale development.

The SITU scale was developed in 2020 by Vardy et al to evaluate large scale, black box multi-intervention WP programmes. Respondents answer 15 statements on a 4-point Likert scale ranging from strongly agree to strongly disagree. The overall SITU score can range from 0 (least confident) to 4 (most confident) and is derived from a mean score of each person's responses to the 15 individual statements of the scale. In addition, for each of the 15 component statements, the level of agreement is summarised as a mean score of each response. As such, both overall intention towards university and the agreement with each specific item of the scale can be evaluated pre and post GCU Connect intervention, which takes place at the beginning and end of the academic year.

TASO's Access and Success questionnaire (2023) is a validated multi-scale questionnaire designed for evaluators to use in part or entire. Due to the intended outcomes of the GCU Connect interventions, the prospective scales focused on senior phase outreach best reflected the intermediate changes expected from participation in the programme. In the prospective scales, respondents answer statements on a 5-point Likert scale ranging from strongly agree to strongly disagree. Similarly to the SITU scale, the effect size is calculated on each individual item and as an overall score, allowing precise analysis of the interventions impact on the intended outcomes.

Discussion/ Reflections

A challenge in the evaluation design was identifying the best approaches for evaluating large multi-intervention type programmes. This centred around discussion on whole programme evaluation verses specific intervention/activity/engagement evaluation in regard to the impact on pre and post change. The GCU Connect programme is a black-box programme made up of various streams of activity – a number of interventions are contained within the GCU Connect programme. For example, whole cohort engagement on subject choices and progression routes, UCAS workshops, and tutoring programmes. As GCU Connect is a new programme of activity with new and existing partner schools and still in the pilot stage of implementation, when designing the evaluation, practitioners and management agreed that a whole programme evaluation was the best approach to measurement of change pre the first GCU Connect engagement and post the final engagement, with follow up evaluation designed to focus on each specific activity/engagement in the coming academic years. This approach was also decided upon as all schools engaged with whole cohort activities, with some schools also engaging with the other elements of the programme.

Another significant challenge of the evaluation approach was gathering the data in schools. The pre measure was taken before the first large scale workshop. Two approaches were utilised dependent on the time allocated by the school to delivery of the project. Our first approach was to build in ten extra minutes to delivery to allow pupils to scan a QR code to access the online version of the survey, paper copies of the questionnaire were also available for pupils without access to the relevant device and/or WIFI in school. This approach generated a participation rate of 49% of available participants. Our second approach was deployed when schools could not accommodate a longer session (primarily down to timetabled periods), so the online survey was sent to the school for distribution ahead of the session or in the case of the post survey, after the final engagement. This resulted in a far lower participation rate, somewhat inevitable as the data capture was not done immediately after the final session. This approach resulted in a 25% participation rate. The busy nature of whole cohort sessions and large-scale workshops time constrained by the structure of a school timetable will continue to cause challenges when trying to collect data, however, the importance of gathering data to evaluate the intervention is essential so our approach will continue to be revised and developed.

Overall, this evaluation approach has been successful in capturing measurable data using validated tools. This provides reassurance that any change (or lack of it) on the immediate and intermediate outcomes will be observable and the results will be robust and reliable for future implementation and development. There is significant work to do on next steps, which is discussed in the sections below.

Limitations

When considering the challenges and limitations of the evaluation design for GCU Connect, it's important to discuss from the outset that ethical approval was sought and granted once the shortlisting and final decision on which validated scales were to be used for the research was taken. Ethical approval was required for the pre and post study as the aims of the evaluation were not just focused on student satisfaction or implementation of the project as a service to our partner schools, but an evaluation on the short term and intermediate educational outcomes of the project designed to increase expectations of self, confidence, and aspiration to progress to HE and the awareness and familiarity of pupils with GCU programmes and student services. Therefore, ethical approval was sought to ensure that the validated tools were appropriate to use with school pupils in the age range of S5 and S6 pupils and that the items contained within the scales had been validated to measure the changes the intervention was designed to address. Another note on limitations pertains to TASO's Access and Success Questionnaire. At the time the evaluation was launched, TASO's scale was a draft in the final processes of validation, with the sector encouraged to pilot the questionnaire in its entirety or the applicable sub-scales for the intervention in question. In order to collect data to finalise validation, TASO required prior permission to use the scale. This process included agreement to use the scales as designed and present each item as intended, as well as agreement that TASO could be in contact to discuss the data collected. TASO has now launched its final version of the Access and Success Questionnaire, which is the version used in the S5 longitudinal study, which can be accessed without prior permission. There are a number of validated scales that require the authors permission before use, such as Reynolds Self Concept Scale (1988).

As the GCU Connect programme is still being piloted and rolled out in its entirety across our new and existing partner schools, the evaluation design was focused on generating empirical evidence (type 2) rather than Type 3 causal evidence. This design decision was taken due to the ethical considerations and implications of establishing a control group. A control group would not have received the interventions and the nature of the programme is time sensitive (i.e., working with senior phase learners during the UCAS cycle and key educational transition stages) which would mean practitioners could not revisit the control group to deliver the programme in the appropriate and applicable timeframe. Not establishing a control group was also discussed due to the potential damaging impact it could have on our school partner relationships – an essential aspect of WP and Outreach work – as it could alienate school partners who did not consent to a group of their pupils being randomly (Randomised Control Trial) or even selected to be (quasi-experimental design) excluded from the programme that could provide benefit to their educational progression and outcomes. However, the absence of a control group for comparison does limit the extent to which we can draw conclusions from the evaluation results and analysis, as results are paired samples and will demonstrate only if there is statistically significant change in the pre and post results for the participant group representative of the cohort. The availability of 'big data' on a national and regional level will allow broad comparisons on leaver destinations and HE progression.

A final limitation of the evaluation approach using validated scales is the inflexibility to amend or change any of the scale items. As the scales have been through a multi-stage process of testing and validation to ensure each respective sub-scale and item highlight the strength of evidence in terms of their association with HE access and success as an educational intervention, the wording and coverage of each item cannot be altered as this could skew any results from the study. This factored into the shortlisting process of potential scales during the evaluation design to ensure the scales used would be applicable to the expected immediate and intermediate outcomes of the programme. We also considered what specific outcomes resulting from the GCU Connect Theory of Change were not covered by the items in the validated scale and designed face valid open-ended questions to include at the end of the questionnaire yet separate from the validated scales. This resulted in one

online questionnaire made up of an alias to pair the samples, demographic information for disaggregation of the results, followed by the two validated scales presented as separate tools, and two open-end questions designed to capture student satisfaction and implementation data.

Lessons Learned/ Future Work

The GCU Connect evaluation is comprised of two phases. Phase one, a one-year evaluation with current S6s, and the second phase a two-year study with current S5s taking part in the full senior phase programme. The S5 study presents an opportunity to evaluate the programme more longitudinally with progression tracked pre and post engagement. However, results and analysis will therefore not be available for two academic years. The S6 data will though provide an opportunity to review the programme and develop activities based on any or no change in scale items relating to the short-term and intermediate outcomes the programme aims to generate. A key lesson of this evaluation has been articulating the evaluation cycle and timeline to project teams and management to manage expectations of outputs and planning resource for next steps and future evaluation work.

Future work following the GCU Connect evaluation then also includes generating various outputs – both in terms of the evaluation process and dependent on results future progression/development of the programme. Outputs could include internal reports, potential publications, and conference presentations. The ongoing evaluation could also develop evaluative practices across other WP initiatives and programmes in order to generate further evidence of impact.

A significant piece of future work is processing the pre and post data for statistical testing using paired sample t-tests (a statistical technique which compares the means of two variables for a single group). Pre and post samples need to be paired using aliases (Scottish Candidate Numbers) provided by participants, with data coded for export into SPSS. The pre and post programme mean score of each scale item as well as the overall mean score of each scale will be compared to ascertain any statistically significant difference between the scores. TASO provide guidance on the minimum important difference in scale score (TASO, 2022), though SITU studies do not provide widely recognised minimum important difference, meaning interpretation of change (or lack of it) is not straightforward. This future work requires substantial resource due to the administrative burden of processing data, and as such will require involvement of a PhD student to assist.

To capture in-depth perceptions of the programme, school stakeholder surveys are another piece of future work to develop and distribute to ensure triangulation of perspectives, as well as to collect implementation data on the rollout out of the programme with our partners. This will require development of face-valid school stakeholder surveys to assess the implementation of the programme within a school setting. In particular, the practicality of facilitating participation in large-scale workshops and using school facilities, and the programme's 'fit' within the broader curriculum and WP landscape. School stakeholders will also be surveyed for their perception of any impact of the programme on their pupils.

Additional Content		
Images		
Shortlisted Scales	Measure	Comment
Students' Intentions Towards University (Vardy, et al., 2020)	Higher Education aspirations, expectations for and concept of self, educational intentions.	The SITU scale was developed in 2020 by Vardy et al to evaluate large scale, black box multi-intervention WP programmes. Respondents answer 15 statements on a 4-point Likert scale ranging from strongly agree to strongly disagree.
The Brilliant Club University Evaluation Items	Higher Education aspiration and knowledge, self-efficacy	The scale was developed by the Brilliant Club for internal evaluations of WP programmes and initiatives. The scale has subsequently been validated through wide scale use. Respondents answer 7 statement questions on a 5-point Likert scale of agreement from strongly agree to strongly disagree.
University expectations and experience questions (Lowis & Castley, 2008)	The pre-measure is focused on students' early expectations, aspirations, and preparedness for university life, with the post measure focused on their actual experiences. The post survey is designed to be distributed at the end of the first semester.	The scale is comprised of 7 statements along a 4-point Likert scale ranging from very often to rarely/never.
Uni Connect perceptions of HE (CFE Research, 2021)	HE aspiration, sense of belonging	The scale is comprised of 4 items designed as a national measure for the Uni Connect programme. Respondents answer items along a 4-point Likert scale – agree, neutral, disagree, don't know
TASO WP questionnaire	University expectations and knowledge, sense of belonging (prospective), academic self-efficacy (prospective)	Validated multi-scale questionnaire designed for evaluators to use in part or entire. Prospective scales focused on senior phase outreach interventions. Respondents answer statements on a 5-point Likert scale ranging from likely to unlikely.



URLs

Education Endowment Foundation (2021) Aspiration interventions.

<https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit/aspiration-interventions> [Accessed 15 January 2023].

Lowis, M. & Castley, A. (2008). Factors affecting student progression and achievement: prediction and intervention. A two-year study. *Innovations in Education and Teaching International*. 45(4), 333–343.

TASO Research (2022) Guidance for Using the Widening Participation Questionnaire Scales.

<https://s33320.pcdn.co/wp-content/uploads/TASO-Guidance-For-Using-The-Widening-Participation-Questionnaire-Scales-November-2022.pdf> [Accessed 15 January 2023].

Vardy, E.J., Upton, P. & Upton, D. (2020) Development of SITU: a survey to measure the impact of outreach activities. *Widening Participation and Lifelong Learning*. 22(2), 162–183.