Trinity Access - Project Overview

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TRINITY ACCESS

Abstract

Internationally, with the rapid growth in the higher education (HE) sector over the past 50 years participation rates of over 50% of the school leaving cohort are not uncommon. However, in Ireland, and in many other countries, the progression rates of low socio-economic status (SES) students are far lower. From both a moral and pragmatic perspective this inequality needs to be addressed.

The aim of Trinity Access is to increase the progression and completion rates of students from low SES groups to higher and further education. It does this through a suite of inter-related initiatives devised to, on the one hand, help students develop the knowledge, networks and skills needed to make informed decisions about future educational opportunities and, on the other hand, support teachers and schools to foster the collaborative and reflective learning environments which support the students in realising their aspirations.

The project is ambitious in its aims and is made up of several interrelated activities. This document serves as an overview of the entire project providing a level of detail, and a single reference point, to complement other project publications and documentation. It provides an outline of the project origins, a description of the intervention model, details on how the work is funded on a sustained basis, a description of the schools it works with and members of the project team. An overview of the theoretical framework guiding the research is given along with a description of the research methodology, data collection and data analysis procedures used. The appendices contain the list of project publications, at the time of writing, and information about the main data collection instruments used. A large amount of data is being collected on an ongoing basis from students and teachers in the schools linked with Trinity Access and evidence thus far indicates a positive impact of Trinity Access activities on young people in Ireland.

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1. Overview

Internationally, with the rapid growth in the higher education (HE) sector over the past 50 years participation rates of over 50% of the school leaving cohort are not uncommon (Keane, 2011) (Higher Education Authority, 2018). However in Ireland, and in many other countries, the progression rates of low socio-economic status (SES) students is far lower. From both a moral and pragmatic perspective this inequality needs to be addressed.

The Irish experience reflects the international one. There has been a significant increase in participation rates - 55% in 2017, (Higher Education Authority, 2018) - but wide social class disparities remain, with only 27% of typical age of entry, low-SES students progressing to higher education in 2017 (Higher Education Authority, 2018).

Trinity College Dublin's efforts to address this issue at an institutional level began in the early 1990s, with the development of widening participation programmes aimed at increasing the progression of students from low socio-economic status groups to higher and further education. A small team began to create a suite of outreach activities. The timeline for development of the programmes is shown in Figure 1 and some key ones are discussed below.

Early initiatives included dedicated "study" spaces within the University for local Dublin-based students and an awards scheme. This quickly developed with the setting up of 'foundation' courses for both traditional and mature students to help prepare them for HE courses and the creation of alternative admissions routes to the university (Trinity Access Programmes (TAP), 2010). The latter has been mainstreamed nationally as the Higher Education Access Route (HEAR[1]), and the foundation course has been replicated in Lady Margret Hall college in the University of Oxford, which was influential in the recently announced university wide schemes in both Oxford and Cambridge.

2014 marked a significant change in the types of initiatives being promoted by Trinity Access (TA). Thanks to the impetus and resources provided by a significant external grant, the focus moved from providing opportunities for selected students from linked (secondary) schools to a more holistic focus on building the social, academic and human capital of all students in linked schools. Given the central role that teachers play in developing such capital in students, this change also saw a focus on providing professional development opportunities for teachers. Further details on the engagement with students and teachers is given in §2.

Other Trinity Access initiatives include: 1) A nation-wide, weeklong, college awareness campaign targeted at schools in areas of low SES to raise awareness of HE opportunities. Launched by Trinity Access, in 2020 the campaign involved 53 further and higher education providers and reached 47% of DEIS[2] second level schools. 2) A national school of distinction award scheme which encourages schools, not necessarily linked with Trinity Access to engage with the 3 core practices described in §2. 3) A range of scholarships and other supports including academic and grinds (private tuition) support, career development programmes, networking, mentoring and hardship funding have been provided for 1051 of Trinity's ~14,000 undergraduate students who entered the university through non-traditional routes in 2020/21, to assist them in their studies.

1. http://accesscollege.ie/
2. Delivering Equality of Opportunity in Schools (DEIS) is an action plan from the Irish Government's Department of Education and Skills in which a range of additional supports, including funding, are provided to schools in areas of low socio-economic status (SES) provided they meet certain criteria.

Our story so far...

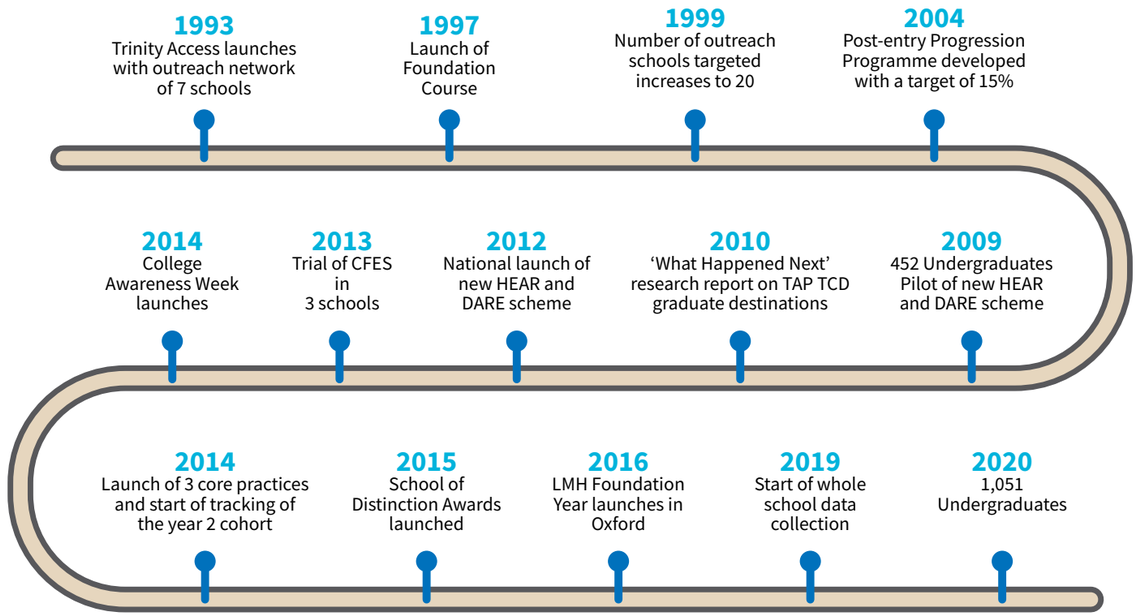


Figure 1 Trinity Access Programmes – Evolution

This document serves as an overview of the entire project providing a level of detail, and a single reference point, to complement other project publications and documentation. It provides an outline of the project origins, a description of the intervention model, details on how the work is funded on a sustained basis, a description of the schools it works with and lists members of the project team. An overview of the theoretical framework guiding the research is given along with a description of the research methodology, data collection and data analysis procedures used. The future plans for the project are outlined. The appendices contain the list of project publications, at the time of writing. For a current list of publications go to https://www.tcd.ie/trinityaccess/research/publications-reports/

As described in the body of this report a large amount of data is being collected, on an ongoing basis, from students and teachers in the schools linked with Trinity Access. Information about the main data collection instruments used are provided in the appendices and the project team are open to requests to access anonymised versions of that data for research purposes.

2. Project Intervention Model and its Evolution

As described above the work of Trinity Access underwent a significant change in approach in 2014. Since then, and influenced by Sen's Capability Approach to inequality (Sen, 1992) Trinity Access has offered a suite of related interventions, all aimed at helping students develop specific forms of 'academic capital'. The work is informed by the 'widening capability' model of widening participation (Walker, 2008). The focus in not just on student progression but on enhancing student potential, capability and choice - this is discussed further in §4.

At an operational level the 2014 reformulation was influenced by the USA-based, CFES Brilliant Pathways[3] programme, which was piloted in 3 linked schools in 2013. It has three components which are derived from the theory of Academic Capital Formation (St John, Hu, & Fisher, 2010). The three components aim to: increase students' understanding of college application and support services (Pathways to College); provide individual mentoring of students (Mentoring); and develop students' leadership skills (Leadership through Service) (Hannon, Faas, & O'Sullivan, 2017). In the Trinity implementation an additional, and very, important fourth aspect was introduced, namely a focus on 21st Century teaching and learning. This involves supporting teachers to embrace pedagogical approaches which help to develop students' so called "21st Century skills". This focus on pedagogy was combined with CFES's Leadership through Service stream for students (in which students engage in service based learning) to create the new core practice called 'Leadership in Learning'.

An outline of each practice, as shown Figure 2, is given below.

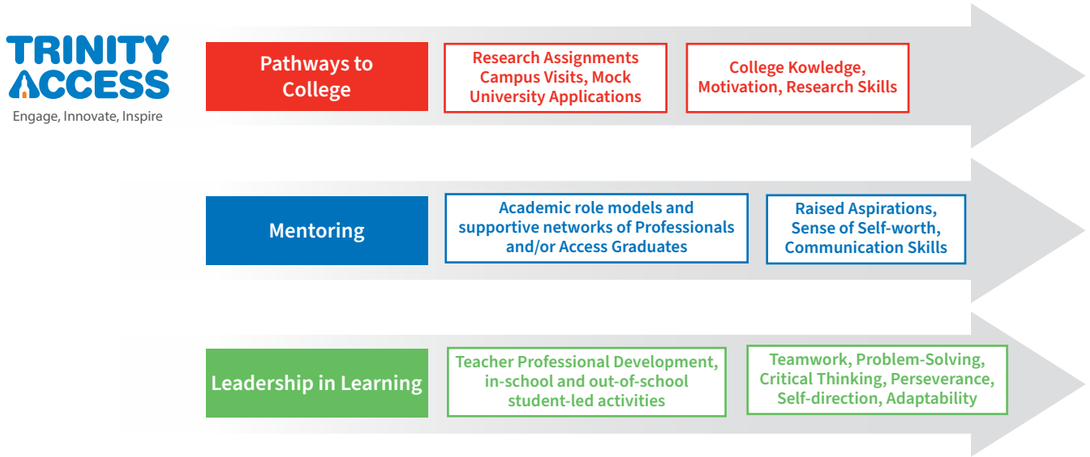


Figure 2 Trinity Access Intervention Model

3. https://brilliantpathways.org/

2.1 Pathways to College

Research in Ireland suggests that a culture of high expectations and support in promoting successful post-school transitions for second-level students is especially important for disadvantaged students whose parents have not attended college themselves (Smyth and Banks, 2012; McCoy et al., 2014). These parents may lack the 'insider' knowledge of the higher education system which could help their children make choices about which course and which college to apply for. Findings point to the importance of a whole-school approach to guidance, in which teachers give advice, on which subjects (and at what level) to study in order to keep options open for the future, and encourage young people to have high aspirations (McCoy et al., 2014).

The Pathways to College core practice involves coordinating activities that provide all students in linked schools with a chance to investigate their post-school options. Activities include, for example, projects relating to college/courses choices, mock CAO/HEAR/DARE[4] applications, campus visits, careers fairs, talks by experts, and workplace visits. Engaging in such activities helps to equip students with the knowledge needed to make informed decisions regarding subjects choices/levels, college courses and career pathways.

Students across all year groups engage in these activities on a regular basis and the materials, and practices used, to promote college do so in an inclusive way so that students from diverse backgrounds are encouraged to consider college as an option for them. Thus, the idea of progressing to college is promoted and made highly visible in the school and community.

2.2 Mentoring

A mentor is one who helps another person to make a transition, whether it be in knowledge, work and/or in their own thinking (Hamilton & Hamilton, 1992). The widening participation literature highlights the positive impact mentors can have on students from lower socio-economic backgrounds (Levine and Nidiffer, 1996; Stanton-salazar & Spina, 2003). Mentoring programmes are an effective way to support and equip students with the knowledge, motivation and confidence needed to overcome some of the barriers low SES students face in accessing higher education. Mentoring programmes have shown to be effective in reducing negative perceptions about higher education, raising educational aspirations (Levine and Nidiffer, 1996; Stanton-salazar & Spina, 2003) as well as increasing students' confidence in college success and their college application efficacy (O'Sullivan et al., 2017).

The Trinity Access mentoring core practice involves various types of mentoring programmes designed to foster academic and personal growth among all students. These include college-focused mentoring, peer-to-peer mentoring, and career-focused mentoring. Mentors include; teachers, past pupils, community leaders, peers, adults, and/or college students.

Effective mentoring programmes are well structured, build relationships through which information can be transferred, and enable students to develop self-esteem and confidence. Mentoring is not a once-off activity; it involves a mentor engaging with a mentee, or small group of mentees, over a length of time. In Trinity Access schools, all students participate in long-term mentoring programmes as both mentees and mentors, mentoring becomes integrated in school planning, and community partners form part of the mentoring structure.

In addition to mentoring, targeted programmes are also run to encourage students to consider certain professions which have low participation rates by students from low SES backgrounds. A "Pathways to Law" programme has been running for a number of years in cooperation with major law firms and more recently Pathways to Business and Pathways to STEM have been launched.

4. These are the various national centralised schemes for applying to HE.

2.3 Leadership in Learning – Pedagogy

A distinguishing feature of the Trinity Access approach is the focus on the pedagogical approach used in schools.

2.3.1 21st Century Skills and the Bridge21 Pedagogical Model

Figure 3 :
Elements of the Bridge21 pedagogical model
(Lawlor J., Marshall K. and Tangney B. 2016)

A number of research studies have explored the interplay between student engagement with education, the quality of student-teacher relationships, and the role of pedagogy (Gettinger and Ball 2007; Hipkins, 2012). The findings of these studies provide strong evidence that engagement with education is better when there is a positive student-teacher relationship and when creative, student-centred pedagogical approaches are used (Boni & Walker, 2016; Naidoo, 2015). This is particularly notable for students in areas of socio-economic disadvantage.

From an international perspective, many school systems are shifting focus away from a traditional, didactic approach to teaching towards one that emphasises the development of so-called “key” or “21st Century” (21C) skills. Although there is no single definition as to what constitutes such a skill set, it typically includes the development of critical thinking, collaboration, communication, and creativity, within a technology-mediated environment (Dede, 2010; Voogt & Roblin, 2012). In Ireland the skills which are being promoted in years 1-3 of secondary school are: Communicating, Managing Myself, Staying Well, Being Creative, Working with Others, and Managing Information and Thinking (NCCA, 2014). These skills are to be developed not in isolation but are rather to be integrated into teaching across the whole curriculum. To this end teachers are encouraged to adopt student-centred pedagogies (NCCA, 2014).

Members of the Trinity Access team have developed a particular pedagogical approach to teaching key skills. It is known as Bridge21 and the model uses teamwork, project based and technology mediated learning, reflection and other approaches from the literature (Lawlor J., Conneely C., Oldham E., Marshall K., & Tangney B., 2018), see Figure 3.

Direct instruction is minimised with the onus being placed on the student taking responsibility for their own learning and that of their teammates. The role of the teacher is thus changed to orchestrating learning rather than delivering content, which was common in Irish secondary schools. An activity model, to scaffold the different stages in a Bridge21 learning activity has been developed (Byrne, Kearney, & Sullivan, 2019), which draws on ideas from Design Thinking (Brown, 2008) – see Figure 4. A sample Bridge21 activity is described in the appendix, §10.1.

The model has been shown to increase students’ self-efficacy in key skills (Lawlor J. et al., 2018); (Sullivan, K., Bray, A., & Tangney, B., 2021) and to improve their intrinsic motivation to learn (Lawlor J., Marshall K., & Tangney B., 2015). It has been used extensively in both informal and formal education settings to teach a variety of curriculum areas from Maths to English (Bray A., Byrne J.R., & Tangney B., 2020; Byrne J.R., O'Sullivan K., & Sullivan K., 2017; Kearney & Tangney, 2021; Sullivan K., Bray A., & Tangney B., 2020). Participation by students from Trinity Access schools in campus-based, week-long workshops based on the model, has resulted in improved confidence in key skills that persists long after participation in the workshops and helps make the transition to HE easier than it might have been for those who do go on to enrol in HE courses, (Sullivan K., 2022).

In the CFES model students engage in a substantial service project as a means of developing their 21st Century skills. In Trinity Access this is extended to promoting the use of the Bridge21 pedagogical model in the classroom so that students both develop key skills and learn curriculum content knowledge. To support teachers in enhancing their classroom practice a suite of professional development opportunities are provided, as outlined in §2.5.

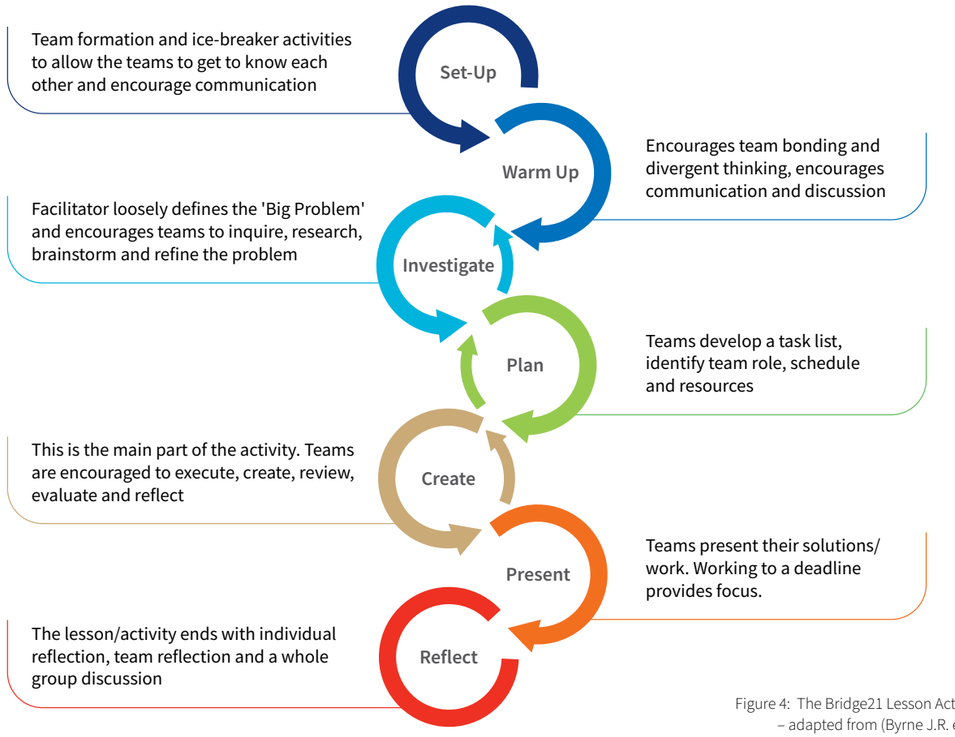


Figure 4: The Bridge21 Lesson Activity Model
– adapted from (Byrne J.R. et al., 2017)

2.3.2 Teacher Professional Development

In keeping with the project goal of supporting "teachers and schools to foster the collaborative and reflective learning environments which support the students in realising their aspirations" and reassured by the evidence of the role certain pedagogies can play in enhancing student learning, the project places a strong emphasis on providing professional development opportunities to teachers in link schools and the wider teaching community. The format in which this CPD is delivered varies and includes workshops in schools, workshops on the university campus and an accredited postgraduate certificate in 21st Century Teaching and Learning[5] run by Trinity's School of Education.

The approach to CPD, (Girvan et al., 2016), is based on an extended model of experiential learning and reflection. Teachers initially experience the model as learners themselves by engaging in, and reflecting upon their experiences of, a non-disciplinary specific, Bridge21 learning activity. Teachers then enter a cycle of planning, implementing and reflecting upon use of the model in their own classrooms – see Figure 5. Ongoing support is provided by fostering the development of a community of practice for teachers. This takes the form of TeachMeets[6] during the year, a mailing list and a website containing community generated resources[7]. The latter (www.thestaffroom.ie) contains information for teachers including lesson plans and resources designed to support the Trinity Access core practices, details of upcoming events and relevant research reports. There is a searchable database of teaching resources and teachers can upload their own lesson plans so others can use them. Teachers can subscribe to a fortnightly email bulletin containing timely information on upcoming events across the three core practices, highlighted resources from thestaffroom.ie, and details of the next "Staffroom Chat". The latter are online discussions, each one on a theme relevant to secondary school teachers which are part CPD and part social, held every fortnight during term time. An annual teacher conference is also held, the last face to face one being in Oxford in 2019.

To support a whole school approach Trinity Access runs an award scheme known as "School of Distinction". The scheme is open to all secondary schools in Ireland serving underrepresented communities, whether they are linked to Trinity or not, and awards are given for school achievements related to the 3 core practices of Mentoring, Pathways and Leadership in Learning. In addition to symbolic banners and certificates, schools receive tangible awards such as free places on the Postgraduate Certificate in 21st Century Teaching & Learning (PG Cert) and small cash grants for spending on activities related to implementing the 3 core practices in school.

The findings from the Trinity Access teacher data to date has shown that teachers who engage with Trinity Access CPD (such as the PG Cert) are more likely to report being listened to by school management[8], higher confidence in using technology in their teaching and higher job satisfaction. Furthermore, teachers who have engagement in Trinity Access CPD are using pedagogies that promote the development of key skills more frequently in their day-to-day lessons (Bray & Byrne, 2019a; Bray, Byrne, & O'Kelly, 2020).

2.4 Direct Student Engagement

Trinity Access has developed 22 bespoke programmes for engaging directly with second level students from 2nd year through to 6th year (ages ~ 13-18). These include activities that take place on the Trinity campus and in school. Programme design is based on the 3 core practices outlined above.

5. https://www.tcd.ie/trinityaccess/schools/teachers/cpd/pg-cert/
6. "A TeachMeet is an organised but informal meeting (in the style of an unconference) for teachers to share good practice, practical innovations and personal insights in teaching." https://en.wikipedia.org/wiki/TeachMeet
7. https://www.thestaffroom.ie/
8. ENiC to add a sentence on the Teacher Voice Scale

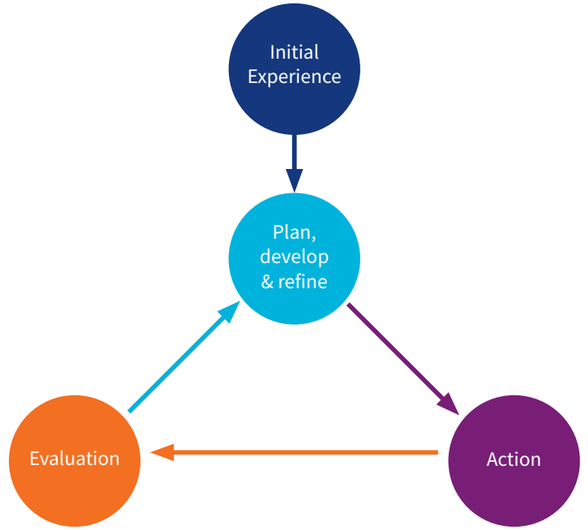


Figure 5.
Bridge21 Model of CPD
(Girvan C., Conneely C., & Tangney B., 2016)

Programmes vary in length of engagement from a few hours over the course of a day or week to 100+ hours over the course of several months. Activities such as talks and campus tours endeavour to pair student groups with college ambassadors, giving them the opportunity to learn about college life and alternative entry routes. Week-long programmes offer students a chance to explore areas of study such as STEM while persistence programmes, which students engage with from secondary school through to the completion of their degree, such as Pathways to Law focus on progression into specific fields.

In addition to these exploratory programmes, Trinity Access also supports student attainment at second level by providing revision classes, and grinds, in key subject areas such as mathematics at both junior and senior cycle. Each year, Trinity Access provides around 10,000 engagement opportunities for students. The numbers for direct student engagement in the 20/21 academic year are shown in Table 1 - the numbers are a little less than normal years due to the impact of Covid.

Programme Type	Duration	Engagement Hours	Participants
Campus visits, talks and Educational Awards	1 day	1 to 5	6815
Junior Cert & Leaving Cert Tuition	1 to 3 months	8 to 10	1402
Exploratory weeks and Summer Schools	1 to 2 weeks	20 to 50	673
Persistence Programmes	6 to 18 months	20 to 110	373

Table 1 Summary of direct student engagement 2020/21

2.5 Funding Model

While some of the staff involved in Trinity Access are supported by core funding from the university, the majority (two thirds) of the ~30 staff are supported by philanthropy and research funding. The commitment to, and success in, fundraising is a key feature of the project and absorbs a substantial amount of time from senior staff, who in turn are supported by the university's professional fund-raising team.

As Trinity Access is a long-term project, requiring sustained engagement, it has built up close working relationships with schools who know that the project team, and the University, are committed to a long-term relationship. Thus, there is a strong level of trust between the project team and the partner schools and together with the longevity of the project, this allows impact to be measured over time. This sustained model of engagement requires a comparable sustained funding model.

In 2014 Google.org provided substantial funding for a three-year initiative which involved the intervention model taking the form described in §2. From 2017 to 2023 the project is being supported by Rethink Ireland[9] who provide a significant uplift to the philanthropic funds raised by the project. This uplift reassures donors and encourages them to provide multi-annual support which provides stability to the project team.

3. Partner Schools

Since its inception in 1993 Trinity Access has had developed partnerships with 60 secondary schools nationwide. All of these partnerships involve continuous dialogue between Trinity Access staff and dedicated teams of teachers and school management as part of an iterative process of change. Schools are offered varying levels of support based on historical links and government funding. Schools fall into one of two groups as described below.

3.1 Leader Schools

These schools have historical links to Trinity Access dating back, in most cases, to the late 90's. During this time all DEIS secondary schools in Ireland as well as certain non-DEIS secondary schools who met certain requirements, were assigned a HEI partner for outreach activities relating to widening participation. (Delivering Equality of Opportunity In Schools, DEIS, is an initiative of the Department of Education and Skills aimed at lessening educational disadvantage and bringing about social inclusion in primary and second level education). Trinity Access is linked with 20 such secondary schools in the greater Dublin area. The Leader Schools dedicate a teacher to be responsible for recruitment for student programmes run by Trinity Access as well as promotion of alternative entry routes. The schools receive an annual stipend, from Trinity Access to support teacher professional development and activities relating to the 3 core practices of TA. Leader schools also act as partners for Trinity Access pilot initiatives in both student engagement and teacher professional development. Leader schools agree to participate in the longitudinal research.

9. https://rethinkireland.ie/ (formally the Social Innovation Fund).

3.2 Network Schools

These schools are not formally linked to Trinity Access through any government initiatives or funding bodies. The majority initially engaged with Trinity Access through open calls for our Schools of Distinction Competition or the Post Graduate Certificate in 21st Century Teaching and Learning. These schools do not have access to direct student engagement activities but are key participants in teacher professional development and the emerging community of practice around Trinity Access. The project has developed partnerships with 40 Network Schools nationwide since 2016.through any government initiatives or funding bodies. The majority initially engaged with Trinity Access through open calls for our Schools of Distinction Competition or the Post Graduate Certificate in 21st Century Teaching and Learning. These schools do not have access to direct student engagement activities but are key participants in teacher professional development and the emerging community of practice around Trinity Access. The project has developed partnerships with 40 Network Schools nationwide since 2016.

4. Research

Following on from the project goal, research at Trinity Access is based on three core overlapping questions.

1. **What is the impact of participation in Trinity Access on students, teachers, school culture/management?**
2. **What are the reasons for any change which occurs? What strategies, level of support from Trinity Access, level of engagement of school management, teachers and students, context etc., have led to which changes?**
3. **How can this information be used to support schools in targeting interventions and resources where they are most needed?**

4.1 Research To Date

The pilot phase of the current programme (2014-2017) was designed as a three-year, quasi-experimental, intervention study – involving 11 treatment schools and 4 control schools. Over that period, and subsequently, it tracked the cohort (n=1,100) who were in year 2 of secondary school in 2014/15 as they progressed through school. Those students who were the treatment group came from 11 Trinity Access linked schools. Two of the control schools were linked to Trinity Access and the other two were not from areas of low SES and had high progression rates to HE. The intention was to produce evidence of the impact of the intervention. The results from the pilot phase showed that involvement in the programme resulted in a positive effect on participants' aspirations to continue in education after leaving school, see (Hannon, 2018; Hannon et al., 2017, O'Sullivan et al., 2017) for further details.

The pilot revealed a number of issues to do with data collection, from the control schools in particular, thus since 2018 a different approach has been followed. It is a school-wide one and aims to explore the experiences and impacts of the programme on as many students as possible in the link schools. This involves an annual data collection process from staff and students in all link schools coordinated and carried out by the Trinity Access team. Members of the project team go into schools for a day or more, depending upon the size of the school. To minimise dependency on school computing resources the team bring a bank of tablet devices (~80) for administering a survey to students on a class by class basis. Qualtrics software is used for the survey and no network connection is required. In 2019 data were collected from 3,960 students and 462 teachers in 17 schools (Bray & Byrne, 2019a, Bray & Byrne 2019b).

In 2020, the data collection was moved online due to Covid-19 related school closures and students were asked to complete the survey while learning from home. Data were collected from 1004 students in 15 schools. The teacher survey was sent to teachers in all 20 linked schools. The same survey was extended to other teachers nationwide through snowball sampling. Data were collected from 723 secondary school teachers during school closures (303 of which were from 20 linked schools) (Bray et al., 2020; Devitt et al., 2020).

In 2021, a hybrid teaching year for secondary schools, data were collected both in school and online. This mixed approach was chosen to give flexibility to schools. Data was collected from 2,781 students and 458 teachers from 17 different linked schools. The past two years have been very difficult for schools due to Covid-19 restrictions. To gather data from nearly 3,000 students under the prevailing circumstances is a very positive outcome and it is hoped that the number of responses will increase when schools return to more normal modes of operation. To date over 5,500 individual students have participated in the research.

As the level of implementation of the core practices varies from school to school, the whole-school approach to data collection from all Leader Schools allows comparisons to be made between students and cohorts who have a high level of exposure to the practices and those with lower or no exposure.

Ethical approval for this research has been granted by the relevant Trinity College Dublin committee.

4.2 Theoretical Framework

Within Trinity Access, there are three theoretical framework driving both the programme and research design. Given the multi-faceted nature of Trinity Access, the programme draws heavily on the capabilities approach (Hannon, 2017; Nussbaum, 2011; Sen, 1992; Walker, 2008), social reproduction theory (Bourdieu and Passeron, 1979) and the bio-ecological model of human development (Bronfebrenner and Morris, 2006) to ensure a holistic perspective on widening participation.

International research consistently shows that students from different socioeconomic backgrounds, ethnic backgrounds and students with different academic abilities have very different outcomes when they leave school. In particular, studies highlight how students from low SES backgrounds typically have lower chances of attending third-level education or entering professions and other high prestige occupations compared to their peers (Gamoran and Mare, 1989; Shavit, 1990; Iannelli, 2000; Arum and Shavit, 1995). This research has traditionally focussed on the extent to which individual characteristics of students such as their socio-economic background, family characteristics, health or disability impact on their educational outcomes. Studies show young people with these characteristics are underrepresented in higher education and are more likely to leave school early (Banks et al., 2011).

Widening participation programmes are often framed within a human capital theory framework, which, when applied to higher education access, posits that by enabling more people to achieve post-secondary qualifications, we will generate a greater economic contribution and therefore create more opportunities for all. The human capital argument was the vehicle used in the 1960s to expand access to second level education in Ireland (O'Connor 2014; Higher Education Authority 2015; Clancy 2015). However, more recent theoretical approaches have sought to address the reductive nature of a purely economic framework.

Trinity Access was initially conceptualised as a project aiming to support young people's academic capital under the umbrella of the Capability Approach (Hannon, 2017; Nussbaum, 2000, 2005, 2011 Sen, 1992, 1999, 2005, 2009). The initial formulation emphasised the need to widen an individual's 'capability', 'opportunity freedom' or potential, where the focus shifts from solely looking at student progression as the desirable outcome, to one that includes student potential and capability. The capabilities approach acknowledges the importance of individual agency and values in decision making, allowing for an expanded view of a life of value, and a student-centric view of progression.

Education research has examined the role of the school in influencing decision making and post-school pathways. Social Reproduction Theory emphasises the instrumental role that teachers and school culture play in the engagement of all students but particularly those from disadvantaged backgrounds. Stemming from the work of Bourdieu (1973, 1986) this theory suggests that a student's familiarity with the dominant culture operates as a form of 'cultural capital' and this shapes their habitus and that these values and norms determine their view of the world (Lareau 2003; Reay, David and Ball 2005). Post-school pathways, including progression to higher education, are seen as being highly influenced by such cultural capital. For this reason, a student's socio-economic background can influence how they fare as they navigate the education system. Students from lower socio-economic backgrounds, who are less familiar with the dominant school culture, are likely to be disadvantaged, owing to the mismatch in values and norms between home, school and university cultures.

The Bio-Ecological Model of Human Development offers a theoretical system within which to study human development over time (Bronfenbrenner and Morris, 2006). The ecological aspect maintains a focus on individuals within their environment, acknowledging and exploring their situation and participation within multiple dynamic and interacting systems, for example the home and family, the peer group, the school, etc. Furthermore, it maintains a focus on the specific processes through which development occurs (for example, shared book reading for young children). "Development" in this model is defined broadly as "the phenomenon of continuity and change in the biopsychological characteristics of human beings" (Bronfenbrenner and Morris, 2006, p.793). This allows researchers to take a broad view of development that can incorporate cognitive, affective, social and other aspects of development. The model has been widely used to represent the complex systemic and personal interactions and processes that are associated with different developmental outcomes. For example, it provides the theoretical framework of the major national longitudinal study, 'Growing Up in Ireland'[10] . Within the bio-ecological framework, the influence of the relationships and interactions between students' families and school contexts is highlighted, as well as the relationships and interactions within the learning environment of the classroom, in exploring different student outcomes. Research findings from Trinity Access and the broader research literature have highlighted the importance of parental support, student-teacher relationships as well as classroom practices, on a range of student outcomes including academic engagement and attitudinal outcomes (Bray et al., 2021; Devitt et al., 2020; Gorard & See, 2011; Boni & Walker, 2016; Byren & Smyth, 2011; Williams et al, 2018). The bio-ecological model allows that holistic focus on interactions as well as direct impacts.

Taken together the holistic perspective on developmental outcomes, the focus on proximal processes influencing developmental outcomes as well as the environment(s) in which development occurs, offers a powerful theoretical lens for exploring a widening participation programme such as TA. They also provide direction in terms of pedagogy and programme design. The capabilities approach emphasises a student-centred focus, in particular, in relation to considerations of what constitutes a successful outcome of the educational process for students, as well as emphasising the processes and structures required to develop student agency and decision-making. Social reproduction theory which maintains a focus on home and school cultures and how harmony between these can contribute to student cultural capital informs programme design which aims, through professional development, to build a school and classroom culture which is supportive and aligned to that of the students. It also highlights the importance of aspects of the programme which aim to familiarise students with the processes and culture of third level. Finally, the bio-ecological model with its focus on the proximal processes that drive development, emphasises the importance of classroom relationships and activities. The Trinity Access

10. https://www.growingup.ie/

pedagogical model and associated professional development work (see 2.3) addresses this core aspect of the bio-ecological framework through its emphasis on facilitating collaboration in the classroom and between teachers.

As regards how the theoretical frameworks can and have been operationalised in research, the Capabilities Approach and the Bioecological Model both maintain a broad and holistic view of what constitutes a successful outcome for students. This has been implemented in the research to date in exploring student skills development as well as looking at a range of post-school pathways, not just entry to third level. Social Reproduction Theory requires a consistent focus not only on the student and their outcomes but also on the broader school and classroom culture within which they are situated. The Bio-Ecological model also takes into consideration the student within their wider environment and in particular the interactions between key individuals in that environment. These are operationalised in the research conducted from the school leadership, teacher and the student perspective on the school and classroom environment and activities which can then be analysed in conjunction with diverse student outcomes.

The next section sets out the overall research approach outlining how the perspectives and interactions of different actors within the school environment are interrogated and explored.

5. Research Methodology

Pragmatism is central to the Trinity Access approach, in that its goal is to improve the situation and to do so in a way which is feasible and implementable (Johnson & Onwuegbuzie, 2004; Johnson, Onwuegbuzie, & Turner, 2007; Morrison, 2007). The work is carried out within an overarching Design-Based Research (DBR) paradigm, a methodology "designed by and for educators that seeks to increase the impact, transfer, and translation of education research into improved practice. In addition, it stresses the need for theory building and the development of design principles that guide, inform, and improve both practice and research in educational contexts" (Anderson & Shattuck, 2012, p. 16).

Anderson and Shattuck (2012) describe DBR as involving seven principles. These are listed below along with a description of how Trinity Access embodies those principles.

- **Authentic Context**. The work of Trinity Access takes place in schools or with teachers and their students on the Trinity campus. The activities in the programme are, to varying degrees in different schools, integral to their overall educational offering and have meaningful impact on participants.
- **A Focus on the Design and Testing of Interventions**. Described in detail in §2, the intervention has been designed and tested over an eight year period. .
- **Mixed Methods**. The Trinity Access mixed methods research design is described below and involves surveys and planning documents.
- **Iterative**. The annual cycle of data collection, analysis, dissemination and consultation is central to the model. At school level an annual report is sent to each principal and the project team are available to consult with school staff on how to refine practice in their school.
- **Collaborative**. There is extensive collaboration with teachers and school management. While the research team takes the lead in the design of the programme and the research, the resulting data and analyses are shared and discussed with teachers and school management wo lead the development of interventions. The community of practice among teachers and the project team is crucial to the collaborative process.
- **Evolving Design Principles**. At the programmatic level, the developments in 2014, discussed in §2, were a significant change. Similarly, the design principles underpinning the Bridge21 pedagogic model have evolved over time. Less dramatic refinements take place on an annual basis as the team seek to continuously deepen their understanding of what works, what doesn't, and why.
- **Practical Impact**. The impact of the project is real and meaningful for students, teachers and schools. Over the years, the project has had significant impact at national policy level and on the widening participation activities of major UK universities.

5.1 Data Collection Instruments

5.1.1 Student Questionnaire

The student questionnaire is composed of 45 questions and takes an average of 21 minutes to complete. The questionnaire contains instruments to record demographic data and to measure student experiences, outcomes, attitudes and skills. The instruments are either validated ones from the literature or ones developed and validated by the research team. For reporting purposes the questionnaire is broken down into three sections; ***Who They Are, What They Did and What We Measured***. These are described below, and more details of the questionnaire can be found in the appendices.

Who They Are Students are asked to give personal information about themselves regarding their age, sex, date of birth, ethnicity, language spoken at home, current year group, current subjects being studied, grade levels, their parents' level of education and their parental educational support.

What They Did *Mentoring, Pathways to College* and *Leadership in Learning* are the three core practices underpinning the Trinity Access project. The mentoring section of the survey asks students about their experience and relationship with mentors, as well as the influence mentors have on them. The Pathways to College (PTC) section asks process questions about the students' frequency of Pathways activities. The Leadership in Learning (LiL) section asked students about LiL activities they have been involved in both in the school and in the community.

What We Measured This section of the survey looks to measure a range of student outcomes. Questions include measures of active engagement with education (Bundick, 2011), student voice (Bundick, 2011), student-teacher relationship (Appleton, Christenson, Kim & Reschly, 2006), and educational aspirations and goals (Appleton et al., 2006). Scales to assess students' exposure to 21st century teaching and learning as well as their confidence in using the key skills of collaboration, communication, creativity, self-direction, critical thinking and using technology for educational purposes were developed for the questionnaire (Bray, Byrne & O'Kelly, 2020). It also enquires about students' post-school plans, their post-secondary field of choice, their application efficacy (Wohn et al., 2013) and their expectation of college success (Wohn et al., 2013). Finally, the questionnaire asks students to complete the Warwick-Edinburgh Mental Wellbeing scale (WEMWBS) and Generalised Pliance Questionnaire (GPQ-C) which are used to assess students' sense of wellbeing (Tennant et al., 2007) and Pliance, a behavioural construct that measures a student's tendency to follow socially learned rules (Ruiz, Suárez-Falcón, Barbero-Rubio, Flórez., 2019).

5.1.2 Teacher Questionnaire

The teacher questionnaire is comprised of 48 questions and takes an average of 20 minutes to complete. The survey collects demographic data and contains instruments to measure teachers' attitudes and behaviours in school. Again, the instruments are either validated ones from the literature or ones developed and validated by the team through cross-validation studies involving exploratory and confirmatory factor analyses on two separate samples. An example of this process can be seen in Bray, Byrne, & O'Kelly (2020). An overview of the questionnaire can be found in the appendices, §10.4.

The teacher questionnaire collected self-reported data relating to the participants' background, experience and professional development, as well as asking questions about participation in Communities of Practice, teacher self-efficacy, key skills, assessment, and teaching and learning with technology. The emotional wellbeing section of the questionnaire is made up of a teacher self-efficacy scale (Tschannen-Moran, 2001), a measure of teacher voice (Bandura, undated) and a measure of teachers' overall job satisfaction (Pipere & Lepik, 2013). A number of scales are also used to identify teachers' 21st century teaching practices (Ravitz, 2014). The questionnaire includes questions relating to teachers' frequency of integration of the key skills in the classroom (Hixson, Ravitz and Whisman 2012 and Ravitz, 2012). The survey asks how teachers integrate these key skills into their teaching practice and the various barriers they may encounter when trying to teach them. These questions are adapted from the work of Euler and Maaß (2011). The final section of the survey explores teachers' continuous professional development (CPD), communities of practice and assessment practices, these questions were developed in house by a team of experts, as recommended by Rubio, Berg-Weger, Tebb, Lee and Rauch (2003).

5.1.3 School Planning Document

Each school in the programme is asked to complete a School Planning Document. This is a collaborative planning tool for schools, used by multiple teachers and members of school management, completed annually. A team made up of the teacher who is the Trinity Access project officer, the school guidance counsellor(s) and school management team contribute to the document.

Firstly, the document acts as a planning tool for the school to plan which activities they will run during the school year. At the end of the year, the final version of this document is submitted to the Trinity Access team. The final version reflects an accurate overview of what has been done with each year group in relation to Trinity Access activities (Mentoring, Pathways to college and Leadership in learning activities). The submission of this document also acts as a 'TA School of Distinction Award' application. This application allows SOD judges to decide on the award for each individual school. Along with the award, schools are also provided with feedback on how to improve their implementation of the Trinity Access core practices within their school.

The School Planning Document also serves as a data collection instrument for research purposes. Information such as school type, DEIS status, numbers of students and teachers are collected. This information provides qualitative feedback from schools on the activities during the year and provides the contexts for the quantitative data collected in the student and teacher surveys. The instrument also collects progression information from students after they leave school in a time efficient, accurate and standardised manner. Data is collected on student progression status, QQI levels (https://nfq.qqi.ie/), course provider, course institution and standardised course field (ISCED-F; http://dx.doi.org/10.15220/978-92-9189-179-5-en).

5.2 Data Strategy

Data Processing Both the Student and Teacher Instruments were administered using the Qualtrics XM Platform. The School instrument was administered using Microsoft Excel. Data cleansing was performed using a combination of Python 3.7 (via Jupyter Notebook) and SPSS v27 (Statistical Package for the Social Sciences). Data cleansing tasks included but were not limited to removal of unconsented participants, removal of duplicates, de-identification of participants, handling of missing data, computation of numerical variables, labelling of nominal/ordinal variables, categorising variables and matching of participants to previous surveys.

The approach to data analysis was determined by the research questions and sub-questions along with the data type of the variables included in analysis.

Data/Dimension Reduction K-mean clustering is an unsupervised machine learning algorithm that aims to group similar data points together. Where appropriate this technique was utilised to reduce the focus of an analysis to a smaller number of variables from a list of multiple variables. Exploratory and Confirmatory factor analyses were used in scale development where appropriate. These statistical methods aided the development and validation of certain measurement scales by reducing the number of scale items to a smaller number of dimensions/factors.

Correlations/Associations Pearson's and Spearman's respective correlation coefficients were calculated to determine the direction and magnitude of a relationship between two continuous/ordinal variables. Chi-square tests of independence were run to determine whether there was an association between two nominal/categorical variables.

Differences Between Groups & Differences Over Time Independent-samples t-tests were used to determine group differences between 2-groups on a continuous dependent variable (DV) with a Mann-Whitney U test used for ordinal DVs. For more than 2 groups, ANOVAs were used in the case of continuous DVs with a Kruskal-Wallis H Test used for ordinal DVs. Categorical DV group differences were analysed using the Chi-square test of homogeneity.

For two time point analyses, differences over time were determined using dependent-sample t-tests for continuous DVs and a Wilcoxon signed-rank test for ordinal DVs. In the case of more than two time points a repeated measures ANOVA was used for continuous DVs, with a Friedman's test used for ordinal DVs. To determine differences in categorical variables over time (for any number of time points) Generalised Estimation Equations (GEE) were used.

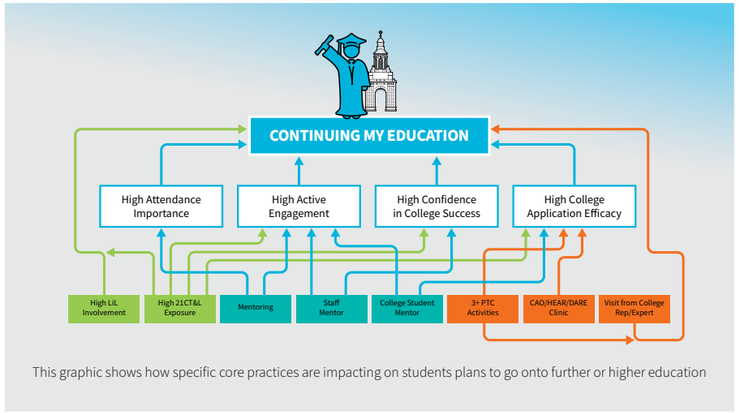
Predictions Various appropriate regression and machine learning approaches were run to determine the most accurate statistical model for predicting each of dependent variables. These included, but were not limited to, Linear Regressions, Logistic Regressions, Decision Trees, Random Forests and Support Vector machines. Cross-validation was used to produce accuracy scores which were compared to determine the most accurate model for each DV.

Reporting Following analysis, annual reports, infographics and research papers are written up for dissemination to key stakeholders including; students, teachers, school management, staff, funders, academics and policy makers. The dissemination strategy is tailored for the specific audience that is being targeted. Simplified infographics, posters, presentations and videos are compiled for dissemination to students, practitioners and funders, see Figure 6 and Figure 7. Academic reports[11] and research articles (c.f. §9) are produced for a research and policy formation audience. Information is disseminated through the community of practice activities described in §2.5. The data informs changes to the supports offered to students, teachers and schools. The data visualisation tool ***Tableau***[12] is used to create interactive school reports based on each schools' individual data – see Figure 8. Consultations are then organised between the research team and school management to discuss the findings and to use the data to support schools in making data-informed decisions regarding planning. This tailored approach to research dissemination allows the Trinity Access team to target a range of stakeholders in the most efficient ways.

11. https://www.tcd.ie/trinityaccess/research/publications-reports/
12. https://www.tableau.com

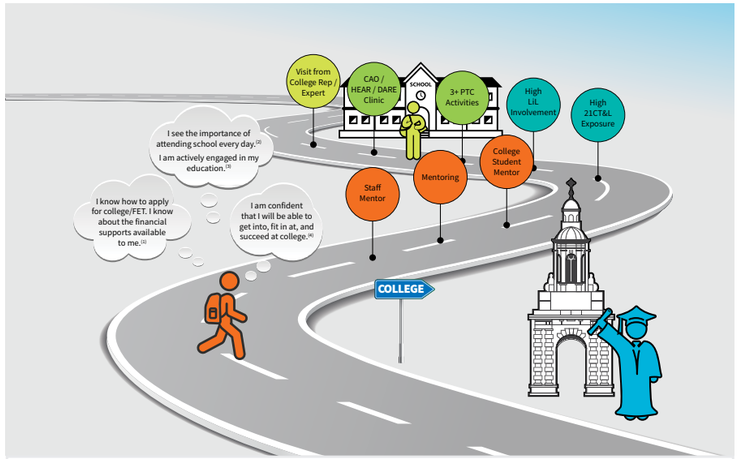
Data Availability An objective of Trinity Access is to collect data on a yearly basis from as many students and teachers as possible in all the project link schools, with the intention of making this data available for use by researchers and practitioners. Following best practice in research ethics, open access and data protection; data sets will be made available for use following the FAIR principles on data sharing and GDPR.

Cleaned and coded survey data will be made available[13] , with personally identifying information such as school name removed or coded, to ensure privacy of students and staff. The School Planning Document will not be available as it includes too much identifying information for it to be meaningfully anonymised.



This graphic shows how specific core practices are impacting on students plans to go onto further or higher education

Figure 6.
Sample Infographic – statistical findings and their relationships



Phil is a secondary student in a DEIS School in Dublin. Throughout his time in school, Phil engaged in a number of Trinity Access activities. These activities were part of Trinity Access' core practises. **Pathways to College**, **Leadership in Learning** and **Mentoring**. The literature highlights the importance of guidance and realistic role models (Mentoring), knowledge and information about higher education (Pathways to College) as well as innovative pedagogies and strong student teacher relationships (Leadership in Learning), in order to tackle educational disadvantage. The Trinity Access longitudinal study has shown that by taking part in these activities Phil had higher active engagement, application efficacy, confidence in college success as well as better attitudes towards attendance. All of these things meant that Phil was more likely to plan on attending a further or higher education institution. Go on Phil!

Figure 7.
Simplified poster of research findings for non-academic audiences

13. Contact tapadmin@tcd.ie

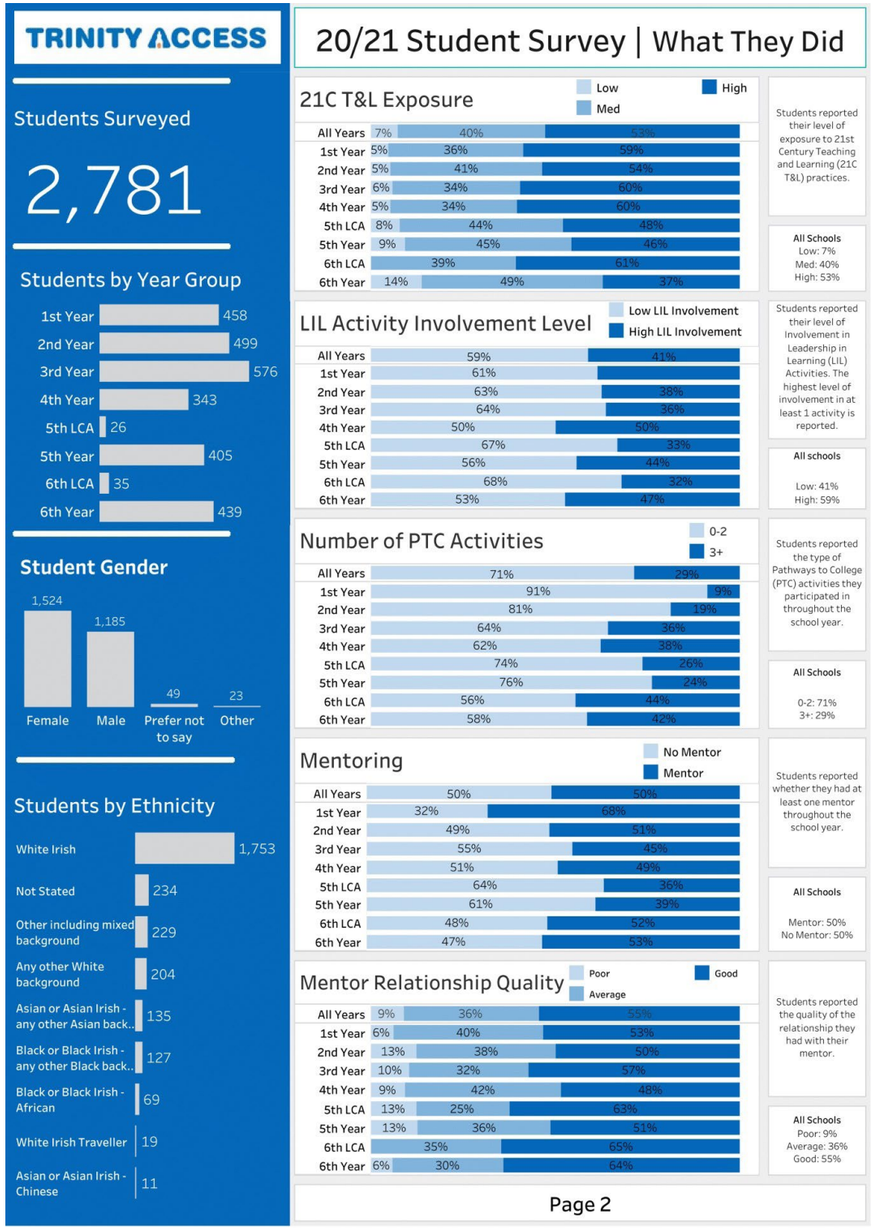


Figure 8. Sample of Interactive Tableau Report for School Consultations (https://www.tcd.ie/trinityaccess/research/ta21/)

6. Summary of Findings

Producing evidence for the efficacy of the Trinity Access approach is an ongoing activity. Key findings from the research published to-date (see Section 10) include the following:

- Participating in Trinity Access activities, students develop capabilities of autonomy, hope, voice and identity (Hannon et al., 2017; Hannon & O'Sullivan, 2018).
- Aspirations to participate in Higher Education are linked to the development of college-focused knowledge (Hannon et al., 2017).
- College-focused mentoring significantly increases students' confidence to succeed in college (O'Sullivan et al., 2017).
- Mentoring significantly increases college application efficacy (O'Sullivan et al., 2017).
- Mentoring relationships are improved when mentors are from similar backgrounds to their mentees (O'Sullivan et al., 2017).
- The quality of mentoring relationships and the number of sessions attended are good predictors of changes in confidence to succeed in college, application efficacy and college-going aspirations (O'Sullivan et al., 2017).
- Participation in the Bridge21 Transition Year workshops can provide significant and sustained increases in students' confidence across the full range of key skills (Sullivan, et al., 2021) and former participants in the programme, going back up to 7 years post-participation in some cases, state that improved confidence in key skills persists long after participation in the workshops (Sullivan, 2022).
- Increased confidence in key skills has positive implications for students' wellbeing, aspirations and other experiences in school (Bray et al., 2020).
- Confidence in key skills is affected by gender and socio-economic status (Bray et al., 2020).
- During the Covid-19 pandemic, teachers in DEIS schools were significantly more likely to report low student engagement in education. However, meaningful student-teacher connections were particularly important for students at risk of educational disadvantage; and where teachers used innovative teaching and learning methods and encouraged development of students' key skills, there was increased student engagement (Bray et al., 2021).

7. The Project Team and Structure

Figure 9. The Bridge21 Learning Space

The bulk of the Trinity Access project team are based in the Academic Services administration unit within the University. The academic collaborators are based in the School of Computer Science & Statistics and the School of Education. Offices for project staff, and space for teaching & learning activities, are provided by the University (in buildings immediately adjacent to the main campus). The Bridge21 learning space, in which many of the student workshops take place, is shown in Figure 9.

The current members of the team are: Aibhín Bray, Annemarie Lambe, Becky Long, Brendan Tangney, Carina Girvan, Ciaran Bauer, Claire Cooper, Cliona Hannon, Clodagh Byrne, Daire Hennessy, Daniel McFarlane, Deirdre Fitzpatrick, Eilís Ní Chorcora, Elaine Reynolds, Fiona O'Reilly, Grace Lawlor, Grainne McInerney, Jake Rowan Byrne, Jane O'Hara, Jen Maguire Donohoe, Kate Maloney, Kathleen O'Toole-Brennan, Kevin Sullivan, Lisa Keane, Molly Dillon-Leetch, Natalie Cullen, Philip Byrne, Ronan Smith, Sarah Grimson, Siobhan O'Brien and Warren Farrell.

Previous members of the team include: Claire Conneely, David Reilly, Emilie Keegan, John Lawlor, Katriona O'Sullivan, Lorraine Curham, Lorraine Fisher, Megan Kuster, Niamh O'Doherty, Sharon Kearney and Tess Tangney.

A project Research Advisory Group steers the research being undertaken. At time of writing its members are: Aibhín Bray, Ann Devitt, Brendan Tangney, Joanne Banks and Lisa Keane.

8. Summary and Future Directions

This report has given a coherent overview of the Trinity Access project. It has explained how the various stands are related to each other, the theoretical framework guiding the project conception and on-going analysis and development, the research methodology used, and the data collection instruments being administered. The publications produced to date are listed in the appendices and it is planned to expand that list as time goes on.

Since 2002, almost 2,200 Trinity Access students have graduated from Trinity College. The progression and retention rates of these students has been systematically tracked since 2002 and the current five-year averages show a progression rate of 94% and a completion rate of 91%. This is on a par with students who enter via "traditional" routes and is concrete evidence that the efforts to assist these students are worthwhile. Their success, at both personal and professional levels, is an area that merits continued analysis as initiatives around access at Trinity College enters their 4th decade.

As stated in the report the project is a longitudinal one and it is planned to continue to engage with schools, and the wider system, going forward as we review and refine the approach taken in light of the changing needs of our schools, students, and the communities in which they are based.

As described in the body of this report a large amount of data is being collected, on an ongoing basis, from students and teachers in the schools linked with Trinity Access. The project team are very open to requests to access anonymised versions of that data for research purposes.

9. Acknowledgements

The project team would like to express their thanks to the following colleagues who contributed to the project at various stages over the years: Andrew Loxley (School of Education, TCD), Carina Girvan (Cardiff University), Claire Conneely (Google), John Lawlor, Katriona O'Sullivan (NUI Maynooth), Kevin Marshall (Microsoft Ireland), Richard Layte (School of Sociology TCD), Rick Dalton and the team at CFES Brilliant Pathways.

This work is, or was, supported by a variety of sources, to whom our thanks are due. They include ReThink Ireland, Google.org and numerous corporate and private donors.

Catherine Coughlan, Eileen Punch, Garreth Crowe and Sinead Pentony from Trinity Development & Alumni have been of enormous help and assistance in securing support for the project. The graphic design is by Ann Walsh also of Trinity Development & Alumni.

The support of the Provosts of Trinity College from 1991 to the present day (Tom Mitchell, John Hegarty, Patrick Prendergast and currently Linda Doyle) have ensured that Trinity Access is seen as core to the college mission.

10. Project Publications

Bray, A., Banks, J., Devitt, A., & Ní Chorcora, E. (2021). Connection before content: using multiple perspectives to examine student engagement during Covid-19 school closures in Ireland. *Irish Educational Studies*, 1-11.

Bray, A., Ní Chorcora, E., Maguire Donohue, J., Banks, J., & Devitt, A. (2020). Post-primary Student Perspectives on Teaching and Learning During Covid-19 School Closures: Lessons Learned from Irish Students from Schools in a Widening Participation Programme. *Trinity College Dublin: Dublin, Ireland*.

Devitt, A., Bray, A., Banks, J., & Ní Chorcora, E. (2020). Teaching and Learning During School Closures: Lessons Learned. Irish Second-Level Teacher Perspectives. *Dublin: Trinity College Dublin*.

Bray, A., Byrne, P., & O'Kelly, M. (2020). A Short Instrument for Measuring Students' Confidence with 'Key Skills'(SICKS): Development, Validation and Initial Results. *Thinking Skills and Creativity*, 37, 100700.

Bray, A., & Byrne, P. (2019). Trinity Access: School Data 2019. Retrieved from Dublin, Trinity Access: http://hdl.handle.net/2262/93074

Girvan C., Conneely C., Tangney B., (2016). *Extending experiential learning in teacher professional development*. Teaching and Teacher Education 58:129-139. August. DOI: 10.1016/j.tate.2016.04.009

Hannon, C., & O'Sullivan, K. (2018). Expanding college and career opportunities for students from low-SES communities in Ireland. *Actionable research for education equity and social justice: Higher education reform in China and beyond*, 66-87.

Hannon, C., Faas, D., & O'Sullivan, K. (2017). Widening the educational capabilities of socio-economically disadvantaged students through a model of social and cultural capital development. *British Educational Research Journal*, 43(6), 1225-1245.

Hannon, C. (2020). Capital, Capabilities and Culture: A Human Development Approach to Student and School Transformation. Willmington, Delaware: Vernon Press.

Lawlor J., Conneely C., Oldham E., Marshall K., Tangney B.,(2018), Bridge21: Teamwork, Technology and Learning - A pragmatic model for effective 21C Team-based Learning, Technology, Pedagogy and Education, Jan, DOI /10.1080/1475939X.2017.1405066

Lawlor J., Marshall K., Tangney B., Bridge21 – Exploring the potential to foster intrinsic student motivation through a team-based, technology mediated learning model, Technology, Pedagogy and Education, 2015, 1-20 http://dx.doi.org/10.1080/1475939X.2015.1023828

O'Sullivan, K., Mulligan, R., Kuster, M., Smith, R., & Hannon, C. (2017). A college focused mentoring programme for students in socio-economically disadvantaged schools: The impact of mentoring relationship and frequency on college-going confidence, application efficacy and aspirations. *Widening Participation and Lifelong Learning*, 19(2), 113-141.

Sullivan, K., Bray, A., & Tangney B., (2021) Developing twenty-first-century skills in out-of-school education: the Bridge21 Transition Year programme, Technology, Pedagogy and Education, 30:4, 525-541, DOI: 10.1080/1475939X.2020.1835709.

Sullivan K. (2022). Developing skills and confidence in out-of-school education. (Ph.D.). Trinity College Dublin, the University of Dublin, Dublin.

11. Appendices

The appendices contain details of the Bridge21 Activity Model and the instruments used to collect data.

11.1 Sample Bridge21 Activity[14]

To illustrate what the model looks like in practice an activity addressing a topic in history is outlined in Figure 10. Team formation having taken place, the activity begins with two brain storming exercises. The first is a divergent thinking exercise (everything you can do with a WWI helmet), while the second (populating a timeline) activates prior learning. The main investigate/plan/create cycles are centred around using on-line databases to research the background to the death (and life) of soldiers who are commemorated in a local memorial. The latter is used because it provides a local context for the investigation (as recommended by history teachers) while also encouraging the students to empathise with the subject of their research. The on-line databases which can be used include the Commonwealth War Graves Commission[15], the In Flanders Fields Museum[16] and the British Army War Diaries[17]. Students need to be given a minimal introduction to these resources and depending upon the information available about a soldier it may be necessary to look them up on a non-military databases, such as a digitised version of relevant national census[18]. The process of researching a soldier in this way means that the students have an authentic experience of doing historical research and developing their 21st century skills of information retrieval and analysis. The students are required to create a (multi-media) presentation on their soldiers which allows them to be as creative as they wish and to explore any aspects of their findings which resonated with them. The presentation phase helps students hone their communication skills and gives the workshop facilitator the opportunity to draw out the learning objectives of the session. The activity concludes with a period for team and individual reflection.

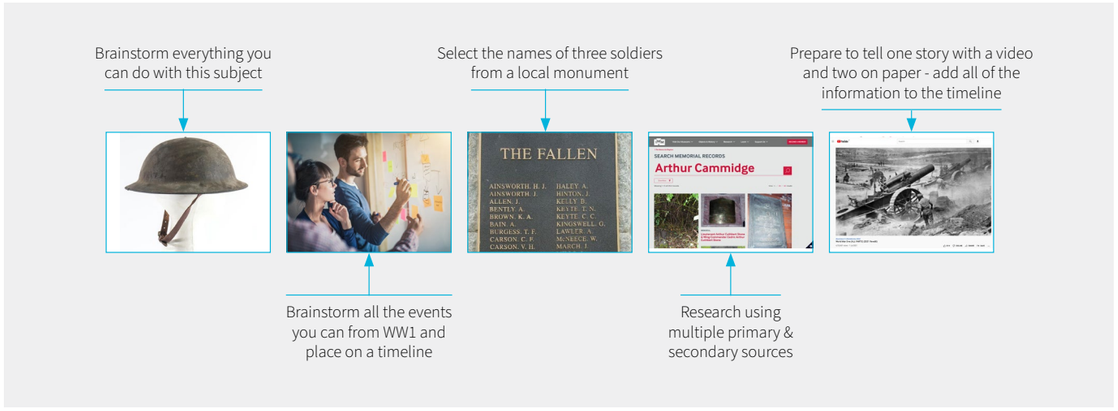


Figure 10. A History Activity Following the Bridge21 Activity Model

14. This activity was designed by Danielle O'Donovan c.f. odonovandanielle.wixsite.com/wwwibridge21
15. http://www.cwgc.org/
16. http://www.inflandersfields.be/
17. http://www.nationalarchives.gov.uk/records/war-diaries-ww1.htm
18. In the case of Ireland both the 1911 and 1901 census are available on-line http://www.census.nationalarchives.ie/search/

11.2 School Instrument

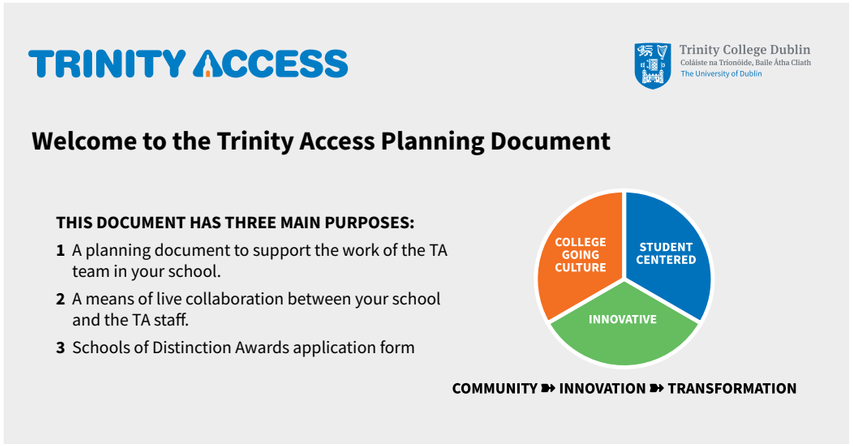


Figure 11.
Screenshot of the School Instrument

The link to complete school instrument is here:
https://docs.google.com/spreadsheets/d/1tasarTMJXrGaO3e33As8vKFNKSfUE9P011eTVe2UePg/edit?usp=sharing

11.3 Student Instrument

Scale	Item(s)	Response(s)	Source Link
Active Engagement (Bundick, 2011)	I enjoy being at school; I like challenging assignments; School is boring; I enjoy participating in my classes; I enjoy learning new things; I learn new things that are interesting to me at school; Learning can be fun.	Strongly disagree = 1 Disagree = 2 Neither agree nor disagree = 3 Agree = 4 Strongly agree = 5.	
Aspirations and Goals (Appleton, Christenson, Kim and Reschly, 2006)	My education will create many future opportunities for me; School is important for achieving my future goals; I plan to continue my education following school; Going to college after school is important.; I am hopeful about my future.	Strongly disagree = 1 Disagree = 2 Neither agree nor disagree = 3 Agree = 4 Strongly agree = 5.	
Collaboration skills confidence (Bray, Byrne & O'Kelly, 2020)	Work in pairs or small groups to complete a task together; Work with other students to set goals and create a plan for your team; Create joint products using contributions from each student	Not at all confident = 1 Not very confident = 2 Neutral = 3 Confident = 4 Very confident = 5	
College Application Efficacy (Wohn et al 2013)	I know how to apply for financial supports or grants when I need to go to college/ university/further education; I understand how the college/university/further education application process works; I feel prepared to go to college/university/ further education (when the time comes); I will be able to keep up-to-date with college/university/further education application deadlines	Strongly disagree = 1 Disagree = 2 Neither agree nor disagree = 3 Agree = 4 Strongly agree = 5.	
Communication skills confidence (Bray, Byrne & O'Kelly, 2020)	Communicate your ideas using media other than a written paper (e.g., posters, video, blogs, etc.); Prepare and deliver an oral presentation to the teacher or others; Answer questions in front of an audience	Not at all confident = 1 Not very confident = 2 Neutral = 3 Confident = 4 Very confident = 5	
Confidence in College Success (Wohn et al 2013)	I will "fit in" socially in college/university; I will be able to make friends at college/ university; I will be able to successfully graduate from college/university; I will be accepted to college/university	Not at all confident = 1 Not very confident = 2 Neutral = 3 Confident = 4 Very confident = 5	
Creativity skills confidence (Bray, Byrne & O'Kelly, 2020)	Test out different ideas and work to improve them; Invent a solution to difficult problems; Create something new that can help you express your ideas	Not at all confident = 1 Not very confident = 2 Neutral = 3 Confident = 4 Very confident = 5	
Critial thinking skills confidence (Bray, Byrne & O'Kelly, 2020)	Try to solve problems or answer questions that have no single correct solution or answer; Draw their own ideas based on analysis of numbers, facts, or relevant information; Analyse different arguments, perspectives or solutions to a problem	Not at all confident = 1 Not very confident = 2 Neutral = 3 Confident = 4 Very confident = 5	
Generalized Pliance Questionnaire –Children (GPQ-C) (Salazar, Ruiz & Florez 2018)	I care a lot about what my friends think of me; It's very important for me to feel accepted by other people; In order to be happy, I need people to like me; The opinions of others influence my decisions a lot; I worry a lot about giving the perfect image of myself; Making an effort is only worth it if people recognize it; It is very important for me that others have a good impression of me; I cannot stand letting people down.	Never true = 1 Seldom true = 2 Sometimes true = 3 Frequently true = 4 Always true =5	

Scale	Item(s)	Response(s)	Source Link
Self-direction skills confidence (Bray, Byrne & O'Kelly, 2020)	Track your own progress and change things if you are not working the way that you should be to complete a task; Assess the quality of your work before it is completed; Use peer, teacher or expert feedback to change your work	Not at all confident = 1 Not very confident = 2 Neutral = 3 Confident = 4 Very confident = 5	
Student-teacher relationships (Appleton, Christenson, Kim and Reschly, 2006)	My teachers are there for me when I need them; Adults at my school listen to the students; Most teachers at my school are interested in me as a person, not just as a student; Overall, my teachers are open and honest with me; At my school, teachers care about students; I enjoy talking to the teachers here.	Strongly disagree = 1 Disagree = 2 Neither agree nor disagree = 3 Agree = 4 Strongly agree = 5.	
Student Voice (Bundick, 2011)	Students have a voice in decision making at school; Adults at this school listen to students' suggestions; Adults and students work together to make our school better; Students work with adults to find solutions to school problems; Students develop projects/programs that improve the whole school.	Strongly disagree = 1 Disagree = 2 Neither agree nor disagree = 3 Agree = 4 Strongly agree = 5.	
Technology for Learning confidence (Bray, Byrne & O'Kelly, 2020)	Use technology to work in a team (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.); Use technology to keep track of your work on assignments; Use technology to help to share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.)	Not at all confident = 1 Not very confident = 2 Neutral = 3 Confident = 4 Very confident = 5	
Wellbeing (Stewart-Brown et al, 2011)	I've been feeling optimistic about the future; I've been feeling useful; I've been feeling relaxed; I've been dealing with problems well; I've been thinking clearly; I've been feeling close to other people; I've been able to make up my own mind about things	None of the time = 1 Rarely = 2 Some of the time = 3 Often = 4 All of the time = 5	
21st Century Teaching and Learning Exposure (Self Validation in progress)	At school I am encouraged to be creative; My teachers present lessons in different ways; We often work in groups in my classes; We frequently present our work to the class; Technology is often used for learning in my school; I have learned about how to plan and complete a project in school.	Strongly disagree = 1 Disagree = 2 Neither agree nor disagree = 3 Agree = 4 Strongly agree = 5.	(Self Validation in progress)

11.4 Teacher Instrument

Scale	Item(s)	Response(s)	Source Link
Collaboration skills frequency (Ravitz, 2012)	How often do you ask students: Work in pairs or small groups to complete a task together; Work with other students to set goals and create a plan for your team; Create joint products using contributions from each student	Almost never = 1 A few time a term = 2 1-3 times per month= 3 1-3 time per week= 4 Almost Daily = 5	
Communication skills frequency (Ravitz, 2012)	How often do you ask students: Communicate your ideas using media other than a written paper (e.g., posters, video, blogs, etc.); Prepare and deliver an oral presentation to the teacher or others; Answer questions in front of an audience	Almost never = 1 A few time a term = 2 1-3 times per month= 3 1-3 time per week= 4 Almost Daily = 5	
Confidence in Technology use (Ravitz, 2012)	I am confident that I can use technology as an effective teaching tool; I am confident that I can use one digital device effectively during large group instruction; I am confident that I can develop effective lessons that incorporate technology; I am confident that I can use technology effectively to teach content across the curriculum; I am confident that I can overcome difficulties using technology in the classroom (time, scheduling, accountability); I am confident that I can manage the grouping of students while using technology as a teaching tool; I am confident that I can meet the challenges of technology integration	Completely disagree = 1 Strongly disagree = 2 Somewhat disagree = 3 Undecided = 4 Somewhat agree = 5 Strongly agree = 6 Completely agree = 7	
Creativity skills frequency (Ravitz, 2012)	How often do you ask students: Test out different ideas and work to improve them; Invent a solution to difficult problems; Create something new that can help you express your ideas	Almost never = 1 A few time a term = 2 1-3 times per month= 3 1-3 time per week= 4 Almost Daily = 5	

Scale	Item(s)	Response(s)	Source Link
Critical thinking skills frequency (Ravitz, 2012)	How often do you ask students: Try to solve problems or answer questions that have no single correct solution or answer; Draw their own ideas based on analysis of numbers, facts, or relevant information; Analyse different arguments, perspectives or solutions to a problem	Almost never = 1 A few time a term = 2 1-3 times per month= 3 1-3 time per week= 4 Almost Daily = 5	
Job Satisfaction (Pipere, & Lepik. 2013)	I sometimes do not get cooperation from the people I work with.; Physical surroundings in my school are unsatisfactory.; Necessary materials (eg. textbooks, supplies, copy machine, library/ media materials, etc.) are always available as needed by the staff.; Teachers in our school have a big influence in making important school decisions and designing school policy.; I prefer to have others assume responsibility.; The work of a teacher consists of routine activities.; Teaching encourages me to be creative.; In our school, staff members are recognised for a job well done.; No one tells me that I am a good teacher.; I know that school management are ready to help me with classroom problems, should they arise.; I look forward to each teaching day.; Physical illnesses may be related to the stress in this job.	Strongly disagree = 1 Somewhat disagree = 2 Neither agree nor disagree =3 Somewhat agree = 4 Strongly agree = 5	
Teacher Self Efficacy (Tschannen- Moran & Woolfolk Hoy, 2001)	How much can you do to motivate students who show low interest in school work?; How much can you do to get students to believe they can do well in school work?; How much can you do to help your students to value learning?; How much can you support families in helping their children do well in school?; How much can you do to manage disruptive behaviour in the classroom?; How much can you do to get students to follow classroom rules?; How much can you do to calm a student who is disruptive?; How well can you establish a classroom management system with each class of students?	Nothing = 1 Very Little =2 Neither a lot nor a little = 3 Quite a lot = 4 A great deal = 5	

Scale	Item(s)	Response(s)	Source Link
Teacher Voice (Bandura, not dated)	Influence the decisions that are made in the school; Express my views freely on important school matters; Get the instructional materials and equipment I need.	Cannot do at all = 1... = 2 Moderately can do = 3 ... =4 Highly certain can do = 5	
Technology for Learning frequency (Ravitz, 2012)	How often do you ask students: Use technology to work in a team (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.); Use technology to keep track of your work on assignments; Use technology to help to share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.)	Almost never = 1 A few time a term = 2 1-3 times per month= 3 1-3 time per week= 4 Almost Daily = 5	
View of Technology (Park & Ertmer, 2007).	Technology can provide instruction suited to individual student's needs; Technology use promotes student-centered learning and self-discovery; Technology can enhance my students' creativity and imagination; Technology can engage my students in collaborative work; My students can learn problem-solving more effectively with Technology; Writing is easier for my students when they use Technology.	Completely disagree = 1 Strongly disagree = 2 Somewhat disagree = 3 Undecided = 4 Somewhat agree = 5 Strongly agree = 6 Completely agree = 7	
21st Century Teaching and Learning (Self (Validation in progress))	For each of the following, please identify the extent to which you use with it with 1st, 2nd or 3rd Year Students in your normal, face-to-face classroom teaching: Teamwork; Technology-mediated learning; Project-based learning; Teacher as facilitator or mentor; Peer feedback or individual student reflection; Focus on key skills development.	Never/Almost never = 1 Once or twice a term = 2 Once or twice a month= 3 Once or twice a week= 4 Daily/Almost Daily = 5	(Self Validation in progress)

12. Bibliography

Anderson, T., & Shattuck, J. (2012). Design-Based Research A Decade of Progress in Education Research? Educational researcher, 41(1), 16-25.

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. Journal of school psychology, 44(5), 427-445.

Arum, R., & Shavit, Y. (1995). Secondary vocational education and the transition from school to work. Sociology of Education 68: 187-204.

Bandura, A. (not dated). Bandura's Instrument Teacher Self-Efficacy Scale. Retrieved from http://anitawoolfolkhoy.waynehoy.net/wp-content/uploads/2014/09/Bandura-Instr1sdm5sg.pdf

Banks, J., Byrne, D., McCoy, S. & Smyth, E. (2010) Engaging Young People? Student Experiences of the Leaving Certificate Applied, Dublin: ESRI Research Series 15

Boni, A., & Walker, M. (2016). Universities and Global Human Development: Theoretical and empirical insights for social change (1st ed.). Routledge. https://doi.org/10.4324/9781315742793

Boudieu, P. (1986) The forms of capital, in: J.G. Richardson (Ed.) Handbook of Theory and Research for the Sociology of Education (New York, Greenwood)

Bourdieu, P. (1973). Cultural Reproduction and Social Reproduction. In R. Brown (Ed.), Knowledge, Education, and Cultural Change (pp. 71-84). London: Tavistock Publications

Bourdieu, P. and Passeron, J.C. (1990). Reproduction in Education, Society and Culture, London: Sage

Bray A., Byrne J.R., & Tangney B. (2020). STEM CPD For 21st Century Teaching & Learning – The Bridge21 Approach. In L. Leite, Oldham, E., Afonso, A.S., Viseu, F., Dourado, L. & Martinho, M.H. (Ed.), Science and mathematics education for 21st century citizens: challenges and ways forwards. New York: Nova Science Publishers.

Bray, A., & Byrne, P. (2019a). Trinity Access: Teacher Data 2019. Retrieved from Dublin, Trinity Access: http://www.tara.tcd.ie/handle/2262/97769

Bray, A., & Byrne, P. (2019b). Trinity Access: School Data 2019. Retrieved from Dublin, Trinity Access: http://hdl.handle.net/2262/93074

Bray, A., Byrne, P., & O'Kelly, M. (2020). A Short Instrument for Measuring Students' Confidence with 'Key Skills'(SICKS): Development, Validation and Initial Results. Thinking Skills and Creativity, 37, 100700.

Bronfenbrenner, U., & Morris, P. A. (2006). The Bioecological Model of Human Development. In R. M. Lerner & W. Damon (Eds.), Handbook of child psychology: Theoretical models of human development (pp. 793–828). John Wiley & Sons Inc.

Brown, T. (2008). Design thinking. Harvard business review, 86(6), 84.

Bundick, M.J.(2011). The Development of Scales to Measure QISA's Three Guiding Principles of Student Aspirations Using the My Voice Survey. Quaglia Institute for Student Aspirations.

Byrne, D., & Smyth, E. (2010). No way back? The dynamics of early school leaving. Technical Report. Retrieved from LiffeyPress, Dublin: http://mural.maynoothuniversity.ie/4333/1/DB_No_Way_Back.pdf

Byrne J.R., O'Sullivan K., & Sullivan K. (2017). An IoT and Wearable Technology Hackathon for Promoting Careers in Computer Science. IEEE Transactions on Education, 60(1), 50-58. doi:10.1109/TE.2016.2626252

Byrne, J. R., Kearney, S., & Sullivan, K. (2019). Technology-Mediated Collaborative Learning: The Bridge21 Activity Model in Theory and Practice. In L. Daniela (Ed.), Didactics of Smart Pedagogy: Smart Pedagogy for Technology Enhanced Learning (pp. 309-330). Cham: Springer International Publishing.

Clancy, P. (2015). Irish Higher Education: A Comparative Perspective. Dublin: Institute of Public Administration.

Dede, C. (2010). Comparing frameworks for 21st century skills. In J. Bellanca & R. Brandt (Eds.), 21st century skills: Rethinking how students learn (pp. 51-76). Bloomington, IN: Solution Tree Press.

Gamoran, A., & Mare, R. D. (1989). Secondary school tracking and educational inequality: Compensation, reinforcement or neutrality? American Journal of Sociology, 94, 1146-1183. doi:10.1086/229114

Gettinger, M., & Ball, C. (2007). Best practices in increasing academic engaged time. In A. Thomas & J. Grimes (Eds.), Best practices in school psychology V (pp. 1043–1075). Bethesda, MD: National Association of School Psychologists.

Girvan, C., Conneely, C., & Tangney, B. (2016). Extending experiential learning in teacher professional development. Teaching and teacher education, 58, 129-139.

Gorard, S., and B. H. See. 2011. "How Can We Enhance Enjoyment of Secondary School? The Student View." British Educational Research Journal 37 (4): 671–690.

Hamilton, S.F., & Hamilton, M.A. (1992). Mentoring programs: Promise and paradox. Phi Delta Kappan, 73, 7: 546.

Hannon, C. (2020). Capital, Capabilities and Culture: A Human Development Approach to Student and School Transformation. Willmington, Delaware: Vernon Press.

Hannon, C., Faas, D., & O'Sullivan, K. (2017). Widening the educational capabilities of socio-economically disadvantaged students through a model of social and cultural capital development. British Educational Research Journal, 43(6), 1225-1245.

Higher Education Authority. (2015). National Plan for Equity of Access to Higher Education 2015-2019. In. Dublin: Higher Education Authority.

Higher Education Authority. (2018). Progress Review of the National Access Plan and Priorities to 2021. In. Dublin, Ireland: Higher Education Authority.

Hipkins, R. (2012). Carrying out school science investigations 'like a scientist': A model for making NoS more explicit. New Zealand Science Teacher, 130, 26–29.

Hixson, N., Ravitz, J., & Whisman, A. (2012). Extended Professional Development in Project-Based Learning: Impacts on 21st Century Teaching and Student Achievement. Charleston, WV: West Virginia Department of Education.

Iannelli, C. (2000). Individual Decisions in Education: a Study of the Low Levels of Educational Attainment in Italy, European University Institute.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed Methods Research: A research paradigm whose time has come. Educational researcher, 33(7), 14-26.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a Definition of Mixed Methods Research. Journal of Mixed Methods Research, 1(2), 112-133.

Keane, E. (2011). Dependence-deconstruction: widening participation and traditional-entry students transitioning from school to higher education in Ireland. Teaching in Higher Education, 16(6), 707-718.

Kearney, S., & Tangney, B. (2021). Exploring a pedagogical model to support teaching new literacy skills in English education – an Irish study. Irish Educational Studies, 1-24. doi:10.1080/03323315.2021.1910974

Lareau, A. (2003). Unequal childhoods: Race, class, and family life.

Lawlor J., Conneely C., Oldham E., Marshall K., & Tangney B. (2018). Bridge21: Teamwork, Technology and Learning - A pragmatic model for effective 21C Team-based Learning. Technology, Pedagogy and Education. doi:https://doi.org/10.1080/1475939X.2017.1405066

Lawlor J., Marshall K., & Tangney B. (2015). Bridge21 – Exploring the potential to foster intrinsic student motivation through a team-based, technology mediated learning model. Technology, Pedagogy and Education, 1-20. doi:http://dx.doi.org/10.1080/1475939X.2015.1023828

Levine, A. & Nidiffer, J. (1996). Beating the odds: How the poor get to college. San Francisco, CA: Jossey-Bass

Maaß, K., & Euler, M. (2011). PRIMAS WP9–Report about the survey on inquiry-based learning and teaching in the European partner countries. EU-Project PRIMAS.

McCoy, S., Smyth, E., Watson, D., & Darmody, M. (2014). Leaving school in Ireland: A longitudinal study of post-school transitions. ESRI Research Series, 36.

Morrison, M., (2007).Where Have All the Theories Gone?. Philosophy of Science, 74 (2): 195–228.

Naidoo, L. (2015). We shall not be moved or led astray: The emergence of the 2015 student movement. New Agenda: South African Journal of Social and Economic Policy 60: 12–15.

NCCA. (2011). Towards a Framework for Junior Cycle. Dublin, Ireland: National Council for Curriculum and Assessment

NCCA. (2014). Key Skills of Junior Cycle. Retrieved from http://www.juniorcycle.ie/NCCA_JuniorCycle/media/NCCA/Documents/Key/Key_S kills_2014.pdf

Nussbaum, M. (2000). Women's Capabilities and Social Justice. Journal of Human Development 1(2): 219-247.

Nussbaum, M. (2005). Wellbeing, Contracts and Capabilities. In L. Manderson (ed.) Rethinking Wellbeing: Essays on Health, Disability and Disadvantage. Perth: API Network.

Nussbaum, M. (2011). Capabilities, Entitlements, Rights: Supplementation and Critique. Journal of Human Development and Capabilities. 12(1): 23-37.

O'Connor, M. (2014). Investment in Edification: Reflections on Irish Education Policy since independence. Irish Educational Studies 33(2): 193-212.

O'Sullivan, K., Mulligan, R., Kuster, M., Smith, R., & Hannon, C. (2017). A college focused mentoring programme for students in socio-economically disadvantaged schools: The impact of mentoring relationship and frequency on college-going confidence, application efficacy and aspirations. Widening Participation and Lifelong Learning, 19(2), 113-141.

Park, S. H., & Ertmer, P. A. (2007). Impact of problem-based learning (PBL) on teachers' beliefs regarding technology use. Journal of research on technology in education, 40(2), 247-267.

Pipere, A., & Lepik, M. (2013). Job satisfaction, beliefs and instructional practice: The case of Latvian and Estonian mathematics teachers. Electronic Journal of Research in Educational Psychology, 11(1), 167-191.

Ravitz, J., Hixson, N., English, M., & Mergendoller, J. (2012, April). Using project based learning to teach 21st century skills: Findings from a statewide initiative. In American educational research association conference, Vancouver, Canada (Vol. 16).

Reay, D., David, M. E. and Ball, S. (2005). Degrees of Choice: Social Class, Race and Gender in Higher Education. Stoke on Trent: Trentham Books.

Rubio, D. M., Berg-Weger, M., Tebb, S. S., Lee, E. S., & Rauch, S. (2003). Objectifying content validity: Conducting a content validity study in social work research. Social work research, 27(2), 94-104.

Salazar, D. M., Ruiz, F. J., Flórez, C. L., & Falcón, J. C. S. (2018). Psychometric properties of the generalized pliance questionnaire-children. International journal of psychology and psychological therapy, 18(3), 273-287.

Sen, A. (1992) Inequality Re-examined. Oxford: Oxford University Press.

Sen, A. (1999). Commodities and Capabilities. Oxford: Oxford University Press.

Sen, A. (2005). Human rights and capabilities. Journal of human development, 6(2), 151-166.

Sen, A. (2009). The Idea of Justice. Cambridge, MA: Harvard University Press.

Shavit, Y. (1990). Segregation, tracking, and the educational attainment of minorities: Arabs and Oriental Jews in Israel. American Sociological Review, 115-126.

Smyth, E., & Banks, J. (2012). 'There was never really any question of anything else': young people's agency, institutional habitus and the transition to higher education. British Journal of Sociology of Education, 33(2), 263-281.

St John, E. P., Hu, S., & Fisher, A. S. (2010). Breaking through the access barrier: How academic capital formation can improve policy in higher education. New York, NY: Routledge.

Stanton-Salazar, R.D. & Spina, S.U. (2003). 'Informal mentors and role models in the lives of urban Mexican-origin adolescents'. Anthropology & Education Quarterly, 34, 3: 231.

Stewart-Brown, S. L., Platt, S., Tennant, A., Maheswaran, H., Parkinson, J., Weich, S., ... & Clarke, A. (2011). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): a valid and reliable tool for measuring mental well-being in diverse populations and projects. J Epidemiol Community Health, 65(Suppl 2), A38-A39.

Sullivan K. (2022). Developing skills and confidence in out-of-school education: The Bridge to College programme. (Ph.D.). Trinity College Dublin, the University of Dublin, Dublin.

Sullivan K., Bray A., & Tangney B. (2020). Developing twenty-first-century skills in out-of-school education: The Bridge21 Transition Year programme Technology, Pedagogy and Education, In press.

Trinity Access Programmes (TAP). (2010). Ten years on: the experiences of mature students in tap and trinity. In. Dublin: TAP.

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. Teaching and teacher education, 17(7), 783-805.

Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. Journal of curriculum studies, 44(3), 299-321.

Walker, M. (2008). Widening participation; widening capability. London Review of Education, 6(3), 267-279.

Williams, J., Thornton, M., Morgan, M., Quail, A., Smyth, E., Murphy, D., & O'Mahony, D. (2018). The lives of 13-year-olds, Child Cohort (6). Retrieved from Dublin: http://aei.pitt.edu/101840/1/BKMNEXT368.pdf

Wohn, D. Y., Ellison, N. B., Khan, M. L., Fewins-Bliss, R., & Gray, R. (2013). The role of social media in shaping first-generation high school students' college aspirations: A social capital lens. Computers & Education, 63, 424-436.

Trinity College Dublin, the University of Dublin.

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