Delivery modalities of access courses in Higher Education in Ireland:

Exploring HyFlex and hybrid modes of delivery

About this document

This document is an output of Stream 1 of the National Technological University TransfOrmation for Recovery and Resilience (N-TUTORR) project. N-TUTORR is an innovative collaboration across the technological higher education sector in Ireland. It aims to transform learning, teaching and assessment by focussing on transforming the student experience and developing the capabilities of all staff, to address a sustainable pedagogical and learning environment, informed by the UN Sustainable Development Goals.

The N-TUTORR programme is funded by the European Union and Next Generation EU, as part of the National Recovery and Resilience Plan (NRRP) and is co-ordinated by the Higher Education Authority (HEA) and the Technological Higher Education Authority (THEA).

This document is a green paper, designed for discussion rather than as a final policy statement, and intended to serve as a foundation for dialogue and collaboration. We welcome and value feedback and suggestions in shaping the evolution of the concepts and ideas presented here.

Any updates to this green paper will be made available at www.transforminglearning.ie/publications

Find out more about N-TUTORR at
www.transforminglearning.ie

X: @N-TUTORR
#TransformingLearning

Version 1, February 2024

Table of contents

List of Figures

List of Tables

List of Abbreviations

ATU	Atlantic Technological University
DFHERIS	Department of Higher Education, Research, Innovation and Science
DkIT	Dundalk Institute of Technology
FACs	Foundational Access Courses
GPA	Grade Point Average
HE	Higher Education
HEA	Higher Education Authority
HEI	Higher Education Institution
IADT	Dún Laoghaire Institute of Art, Design and Technology
MTU	Munster Technological University
NRRP	National Recovery and Resilience Plan
N-TUTORR	National Technological University TransfOrmation for Recovery and Resilience
SETU	South East Technological University
THEA	Technological Higher Education Association
TCD	Trinity College Dublin
TU	Technological University
TU Dublin	Technological University Dublin
TUS	Technological University of the Shannon
UCD	University College Dublin
UL	University of Limerick
UoG	University of Galway

Executive Summary

1

1 Executive Summary

Foundational Access Courses[1] (FACs) are designed to prepare learners to commence in a course of further study in Higher Education (HE). They are a key part of access programmes[1] at Higher Education Institutions (HEIs), which may include additional supports such as financial assistance, that strive to enable access to all learners regardless of their background. Access courses, and some of the programmes in which they are embedded, are guided by the National Access Plan (2022), which is underpinned by five student-centred goals: flexibility, inclusivity, clarity, coherence, and sustainability. These student-centred goals, along with recent pedagogical lessons learned during the COVID-19 pandemic, have encouraged institutions to re-examine how students engage with course content. This has led to the rise of delivery modalities other than face-to-face teaching, including online synchronous, online asynchronous, blended/hybrid, and more recently, HyFlex.

HyFlex, or Hybrid Flexible, provides learners with a choice between face-to-face, and online asynchronous/synchronous learning. Originally conceptualised by Brian Beatty (2014), it allows students to choose the delivery mode that best meets their needs. Although similar to hybrid delivery, HyFlex offers greater flexibility to students as it is the students rather than the instructors who choose how they will access their learning and how they combine in-person, synchronous and asynchronous online participation. Implementing HyFlex in higher education may have the potential to incur a transformative effect on student flexibility and agency, without negatively affecting academic performance. Considering recent rapid increases in living costs and the considerable barrier they pose to accessing higher education, implementing HyFlex in foundational access courses may facilitate increased participation for those from lower socio-economic backgrounds, by giving students the choice to engage in course-work online when needs dictate.

This report presents a scoping snapshot of how content is delivered in foundational access courses in higher education institutions in Ireland and explores opportunities for HyFlex and hybrid modes of delivery. This report is an output of the National Technological University TransfOrmation for Recovery and Resilience (N-TUTORR) programme under Stream 1. The overarching aim of the N-TUTORR programme is to transform learning, teaching, and assessment across the Technological University sector in Ireland by focussing on transforming the student experience and developing the capabilities of all staff to address a sustainable pedagogical and learning environment. The N-TUTORR programme is funded under the National Recovery and Resilience Plan (NRRP) as part of the EU Next Generation Fund. The programme is a partnership among the five technological universities (Atlantic Technological University, Munster Technological University, South East Technological University, Technological University Dublin, and Technological University of the Shannon), two Institutes of Technology (Dundalk Institute of Technology and the Dún Laoghaire Institute of Art, Design and Technology), and is supported by the Higher Education Authority (HEA) in Ireland and the Technological Higher Educational Association (THEA).

---

[1] This report makes the following distinction between access *courses* and access *programmes*: access *courses* refer to grouped units of teaching designed to prepare students from disadvantaged or minoritized backgrounds for entry to higher education; access *progammes* refer to institutional approaches aiming to facilitate entry to higher education for all students and may include the provision of access courses.

The findings of this report will be used to inform a pilot associated with Stream 1 of the N-TUTORR programme: 'Transforming the Learner Experience Through Student Empowerment', which builds on findings from the 'NEXT STEPS for Teaching and Learning' report (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2021). More specifically, this paper will explore opportunities for HyFlex and hybrid delivery and support a pilot plan to evaluate the implementation of HyFlex course delivery in a foundational access course at a partner institution. This planned pilot of a HyFlex Access course falls under Stream 1 Work-Package 'Sustainable pathways to higher education', which considers what the Irish HE sector has learnt from the experience of the COVID-19 pandemic.

The information compiled in this report came from two sources: desk research (i.e., review of related literature and exploration of university websites) and a survey of the technological higher education institutions, all of which are N-TUTORR partners, administered via N-TUTORR institutional leads. Section 2 gives an overview of key terms and concepts such as widening access in higher education, definition and purpose of access programme and courses, and different delivery models, such as blended, hybrid and HyFlex learning. Section 3 presents a small systematic literature review on studies investigating HyFlex in Higher Education. Section 4 outlines the foundational access courses offered by universities and the TU/IoT sector in Ireland, including information related to how course content is delivered in these courses.

The findings highlights of the two major objectives of this report are outlined below.

Highlights of systematic literature review on studies examining HyFlex in Higher Education:

- Current studies investigating HyFlex delivery in Higher Education examine its effect on student-related constructs, and obtain staff/students perceptions on its delivery.
- Most studies framed their work around the Beatty (2014) definition of HyFlex, however upon further examination, few of the investigated delivery modalities offered a high level of student choice.
- HyFlex delivery has no significant impact on student academic performance.
- Students appreciate the flexibility HyFlex provides but ideally would prefer to be able to attend face-to-face
- Staff training and reliable technology are key for the successful implementation of HyFlex.
- None of the included studies featured HyFlex being implemented in Access courses; the majority pertained to undergraduate courses.
- There is a current research gap on the effectiveness of HyFlex delivery to address barriers Access students may face in engaging in courses face-to-face.

Highlights of analysis of delivery modality of foundational access courses in Ireland:

- Currently, nine Higher Education universities in Ireland offer foundational access courses: ATU, DkIT, SETU, TCD, TU Dublin, TUS, UCD, UL, and UoG.
- At the time of writing this report, there are currently nine foundational access courses being delivered by four N-TUTORR partner universities: ATU, SETU, TUS and TU Dublin.
- Most of the foundational access courses available at N-TUTORR partner institutions cater towards young adults or mature students, are nine months full-time, and guarantee students a place in an undergraduate course upon successful completion. Four are specifically for international students (DkIT, TU Dublin, TUS, SETU).
- All of these foundational access courses employ some element of face-to-face classroom teaching.
- Four N-TUTORR partner institutions (TU Dublin, TUS Midlands and SETU) employ only face-to-face classroom teaching in their foundational access courses.
- ATU has developed a series of online courses and digital badges to support Access students and more recently have introduced MyCareerPath.ie to guide and mentor candidates on course options available following completion of the Access course.
- No foundational access courses identified in this investigation currently use HyFlex teaching.
- Two active courses were identified that may be a potential candidate for a HyFlex pilot as they already employ a wide range of delivery modalities: *Certificate for Access in HE* (ATU Donegal) and *Certificate in Transition to HE* (TUS Midwest).
- This analysis also identified a suite of online learning resources provided by ATU: a non-accredited foundational access course named 'HigherEd4All' and a career strengths profiling tool – both offer potential for Access Digital Badges and the creation of a dedicated online access learning pathway on the N-TUTORR Student Digital Backpack which aims to promote Higher Education access pathways and support learners.

This green paper concludes with a series of recommendations for the N-TUTORR programme, informed by the findings above (Section 5).

Introduction

2

2   Introduction

This report makes the following distinction between access courses and access programmes: access *courses* refer to grouped units of teaching designed to prepare students from disadvantaged or minoritized backgrounds for entry to higher education; access *programmes* refer to institutional approaches aiming to facilitate entry to higher education for all students and may include the provision of access courses.

2.1   Access programmes: concerted efforts to widen participation in HE

The European Council defines access as:

> *'The widening of participation in good quality higher education to all sectors of society; the extension of participation to include currently under-represented groups; and a recognition that participation extends beyond entry to successful completion'*

> (European Council, 2019, *as cited by* O'Reilly & Patricia, 2008)

In Ireland, three white papers guided the first policies related to access in Higher Education (HE) in the late 1990s: *Charting our Education Future,* the *Report of the Steering Group on the Future of Higher Education,* and *Report of the Commission of the Points System* (Department of Education and Science 1995a, 1995b, and 1999 respectively, *as cited by* McMullin, 2017). More recently, national strategies regarding access to higher education are informed by the National Access Plan. The most recent national access plan, 2022-2028, developed through partnership between the HEA and Department of Higher Education, Research, Innovation and Science (DFHERIS), is the fourth strategy of its type since its first in 2005 (HEA, 2022).

As noted by O'Reilly (2008), barriers for access into third level education are typically derived from financial and socioeconomic factors. In fact, 10% of full-time new entrants to higher education are from disadvantaged areas, compared to 18% from affluent areas, highlighting the financial barrier that exists for many would-be students. Indeed, financial cost has been identified as a significant issue for access to higher education (HEA, 2022). However, barriers to entry to higher education are not limited to these two factors and are multi-faceted. As stipulated by the most recent national access plan (HEA, 2022, p.27): "*People should have access to education independently of their socioeconomic background, ethnicity, gender, geographic location, disability or other factors".* Creating a more equitable education system is a particular focus of the current national access plan. The strategies outlined in the plan hinge around five student-centred goals: flexibility, inclusivity, clarity, coherence, sustainability, all underpinned by an evidence-based approach. The National Access Plan also sets out the funding framework on various initiatives to support access across higher education. There are two categories to this: (i) funding that supports the HEIs to implement access strategies, such as PATH funding, and (ii) funding that directly helps students with the cost of higher education, such as the Student Grant Support SUSI (HEA, 2022). This report concerns the former category, which also supports Core Access Infrastructure such as access services and staff in HEIs i.e., their access programmes.

Access programmes are designed to "…encourage young adults from socioeconomic groups that are under-represented in higher education, mature adults, persons with disabilities and

ethnic minorities, to go to university" (McMullin, 2017, p.143). The services provided by access programmes tend to be needs-based according to each institutions' student body. Services to widen access include dedicated schemes for outreach with disadvantaged schools, summer schools, on-campus school visits, shadowing days, and foundational access courses (McMullin, 2017), which are the focus of this report.

2.2 Access courses: facilitating entry to HE for disadvantaged students

'Foundation courses' or 'access courses' or 'foundational access courses' are preparatory courses that are designed to prepare prospective students to enrol in an undergraduate degree at higher education. They are typically designed for young adults who may not have obtained the necessary grades to apply to an undergraduate degree or mature students who are returning to full time education (Colleges.ie, n.d.).

Murphy (2009) provides the following definitions of access courses and foundation courses:

> *'Access courses are intended to facilitate learners to commence on a course of continuing education having received recognition for knowledge, skills or competence required.*
>
> *Foundation courses are generally intended to give a 'foundation' in a subject that enables the learner to go on to further study in that subject area. Some courses provide an academic preparation in a range of disciplines.'*

(Murphy, 2009, p.30).

This report merges these two definitions into one: Foundational Access Courses (FACs) that are designed to prepare learners to commence in a course of further study in that area at higher education. The most recent evaluative report on FACs provided by higher education in Ireland was carried out by Murphy (2009). In their research report, Murphy (2009) compiled information about twenty access courses that were being delivered across the higher education sector (Table 1). Since then, several of the Institutes of Technology (IoTs) have merged to become Technological Universities (TUs).

However, Murphy (2009) cautions that the list was not exhaustive, as data on higher education courses were not systematically collected at either national or institutional levels. Across these courses, there was a high level of consistency of core curricular elements offered (Murphy, 2009). Often, there was a combination of subjects that focused on *"learning skills, confidence building and personal and motivational development"* (Murphy, 2009, p. 53), hereby referred to in this report as 'Academic readiness' subjects, and subjects that aimed to give an introduction into chosen fields of interest e.g., science, arts or commerce, hereby referred to in this report as 'Field introduction' subjects.

The report gives a little insight into the teaching and learning methodologies used across these courses. Methodologies identified include lectures, group work, case studies, audio visual presentations, individual research, class discussion and practical/laboratory sessions for subject areas such as Science & Engineering (Murphy, 2009, p.57). There is no mention of whether there was a variety in delivery modalities, and it is presumed that course content was delivered in lectures/classroom face-to-face.

Table 1. Overview of foundational access programmes in 2009. Table adapted from Murphy (2009, p.126).

Institution	Course name	Target group	Full-time/Part-time
UCD	Return to Learning	Mature learners	Part-time
UCD	Access to Science and Engineering	Mature learners	Part-time
UCD	Access to Commerce	Mature learners	Part-time
NUIG	Access course	School leavers	Full-time
NUIG (links with GMIT)	Foundation course in Eng, Sci, IT	Mature learners	Unknown
NUIG	Foundation course in Business	Mature learners	Unknown
NUIM	Foundation Certificate in Science/Engineering	Mature learners	Full-time
UCD	Foundation course for young adults	School leavers	Full-time
UCD	Foundation course for mature students	Mature learners	Full-time
UCD	Foundation course	School leavers	Full-time
UCD	Mature student access course	Mature learners	Full-time
MIC	Foundation Course	Mature learners	Part-time
IADT	Foundation Certificate	Mature learners	Full-time
AIT	Foundation Cert International	Mature learners	Full-time
AIT	Foundation Cert Technology	Mature learners	Full-time
GMIT - Castlebar	Foundation Certificate	Mature learners	Full-time & part-time
GMIT- Galway	Foundation Certificate	Mature learners	Full-time & part-time
LYIT	Foundation Certificate	Mature learners	Full-time & part-time
WIT	Foundation Studies Certificate	Mature learners	Full-time
Tipperary Institute	Foundation Cert	Mature learners	Part-time

UCD = University College Dublin, NUIG = National University of Ireland Galway (now University of Galway), GMIT = Galway-Mayo Institute of Technology (now Atlantic Technological University), NUIM = National University of Ireland Maynooth (now Maynooth University), MIC = Mary Immaculate College, IADT = Institute of Art, Design and Technology, AIT = Athlone Institute of Technology (now Technological University of the Shannon, Athlone campus), LYIT = Letterkenny Institute of Technology (now Atlantic Technological University, Donegal campus), WIT = Waterford Institute of Technology (now South East Technological University, Waterford campus).

Whilst this report does not seek to make a critical comparison of delivery modalities between 2009 and 2023, it is worth noting that the higher educational landscape, and the population and needs of potential access students, has changed in the last decade. For example, the percentage of new entrants who are mature students has decreased (11.1% in 2009/10; 7.5% in 2020/21). However, the percentage of new entrants who are students with disabilities increased (4.7% in 2009/10; 12.4% in 2020/21). A recent report by Ahead, the organisation which aims to create inclusive environments and employment for people with disabilities, indicated that 56% of students with disabilities surveyed prefer to engage in courses 'delivered through a mix of in-person and online learning activities' (AHEAD, 2023, p.11). Furthermore, students engaging in flexible learning has nearly doubled (14.1% in 2009/10; 24.6% in 2020/21), highlighting the recent strategic focus on flexible learning (HEA, 2022 & 2017).

In addition, the COVID-19 pandemic accelerated technological advances across the higher education sector, as institutions made the rapid pivot to facilitate online learning. Moreover, the national access plan calls for "continued blended or hybrid learning post-Covid as a means of creating more accessible and flexible modes or learning for students" (HEA, 2022, p.39). The current national access plan also identifies that non-adjacent students' costs have risen the most and are most affected by rising rent levels. Furthermore, it highlights that those from lower-income families or disadvantaged groups may not be able to attend higher education full-time or may need a way that allows them to engage more flexibility. Giving learners more choice in how they engage with course content, including online learning, may widen participation of students that may not be able to attend face-to-face lectures full-time.

2.3   Delivery modalities in higher education

The recent experience of the rapid pivot to online learning has prompted many institutions to reflect on their teaching modalities and use what has been learned to enhance the student experience. Recently, Pathak & Palvia (2021) proposed a taxonomy to describe higher education delivery models, which feature four broad classifications: face-to-face (in-class or online synchronous), hybrid, online asynchronous and HyFlex (Figure 1). The quadrant notes the efficacy of each model, as determined by facilitated level of personalisation, engagement, integrity and market acceptance, and the efficiency of each, as determined by required cost and time (Pathak & Palvia, 2021).
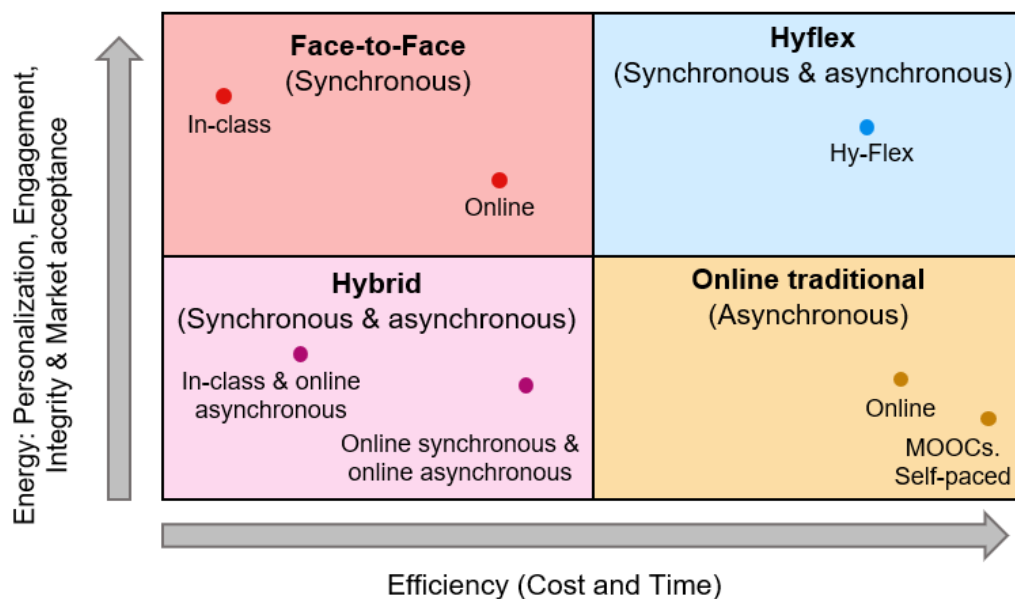
Figure 1. Taxonomy of higher education delivery modalities. Redrawn from Pathak & Palvia (2021, p. 40).

These four classifications can be described as below:

- **Face-to-face:** includes both traditional engagement in-person in class, and online synchronous engagement, which can try to emulate the in-person experience with technological features such as break-out rooms, interactive polls and screen sharing
- **Online traditional:** all classwork is done virtually and independently by learners.
- **Hybrid (or blended learning):** a combination of face-to-face (in class or online) and online asynchronous modes. Students are not given a choice of which of these modalities to use; the learning modality is prescribed according to content.
- **HyFlex:** a more flexible version of the hybrid model. A key component of HyFlex is student choice; students can decide whether to engage with course content either face-to-face or online asynchronous, as best suits their needs.

Of the four classifications, the HyFlex model offers the most flexibility and personalisation to leaners (Howell, 2022). In a recent literature review, Howell (2022) examined 19 sources (11 studies and 8 practitioner reflections) investigating the HyFlex model in Higher Education. This review indicated that implementing HyFlex learning in higher education has been demonstrated to increase student enrolment, and incur less costs related to human and

infrastructure investment (Howell, 2022). Furthermore, this flexibility is apparently obtained without negatively impacting students' grades (Howell, 2022)(see Section 3.6.1 for systematic literature review on the effect of HyFlex on student academic performance). The challenges associated with implementing HyFlex include differentiation of instruction, digital literacy of students, learner agency, social interaction, student attendance and student self-regulation (Howell, 2022).

It may seem antithetical for learner agency to be presented as a challenge associated with HyFlex learning, as it is so integral to its proposed benefit. However, although HyFlex learning can facilitate more student flexibility, and therein agency, it also requires students to have a moderate command of self-regulation, with which some students may struggle (Howell, 2022). What seems consistent however, is that implementing HyFlex in higher education can increase learner flexibility. Moreover, providing students with the choice of how they engage in lecture content, may widen participation to those who may not be in a position otherwise to engage in face-to-face learning, due to for example increasing living costs. Considering the recent findings highlighted by the current access report (HEA, 2022), implementing HyFlex in foundational access courses may widen participation for those from lower socio-economic backgrounds, particularly those struggling financially.

2.4   Objectives, and methods of this investigation

Little is currently known about the implementation of the HyFlex model, if at all, in foundational access courses in higher education in Ireland. To address this gap, this investigation aimed to obtain an overview of delivery modalities employed in these courses in Ireland and explore opportunities within the N-TUTORR TU sector network to design and pilot a HyFlex model.

This work was underpinned by the following objectives (Obj):

- Obj1: Conduct a mini systematic literature review examining research published on HyFlex implementation in higher education between 2018-2023
- Obj2: Survey the current provision of access courses and associated delivery modalities in higher education institutions across Ireland

Section 3 describes the specific methods and findings associated with the mini systematic review (Obj1). Section 4 describes the specific methods and findings associated with the survey of access courses across higher education in Ireland (Obj2). There are some limitations associated with Obj2 that should be noted here. Firstly, the findings associated with institutions not associated with N-TUTORR were limited to an exploration of information presented on university websites (in September 2023). This information may be out of date or incomplete. Secondly, the findings associated with N-TUTORR institutions were informed by an MS forms survey administered via N-TUTORR institutional leads. These represent an exploratory snapshot and are not designed to act as comprehensive responses. Conclusions and recommendations informed by the findings are presented in Section 5.

Examining implementation of HyFlex in HE: Systematic literature review

3

3 Examining implementation of HyFlex in HE: Systematic literature review

3.1 Systematic literature review stages

To gain an insight into what research is being conducted regarding HyFlex implementation in HE, a systematic literature review was carried out. The stages of the systematic literature review followed PRISMA reporting guidelines (see Figure 2). Four search databases were used: ERIC, Emerald, Taylor and Francis and Wiley Online. The following search terms were used: "HyFlex" OR "hy-flex" AND "higher education". Results were limited to those published between 2018-2023. A total of 254 records were identified at this stage (Figure 2). More records were also identified through snowballing (i.e., cited in reviews) or through the first two pages of a Google Scholar search (intitle: HyFlex and "higher education", n = 168 total hits, n = 6 hits selected). Once the initial papers had been identified, duplicates were removed, resulting in 261 papers (Figure 2). These papers were screened by title and abstract, with the following criteria being applied:

- Study focus must be on Hyflex in Higher Education
- Must be written in English
- Full-text must be available through ATU access
- Must be primary research (i.e. no reviews)
- Must be empirical research (i.e. no conceptual, theoretical or descriptive papers without evaluation)

This screening process resulting in 238 papers being removed. Furthermore, many were removed as the focus of the paper was not on HyFlex, indeed the word 'HyFlex' may have only appeared once in the introduction or recommendation sections. This screening process left 23 full-text papers to be further assessed for eligibility (Figure 2). A further six papers were removed as their results did not focus on HyFlex, three papers were removed as their implemented HyFlex model did not give students choice in delivery mode, two papers were removed as they presented no empirical data, and one paper was removed due to the data collection method and results presented (Figure 2). An additional two papers were included from snowball sampling (i.e., cited in other papers).

A total of 13 papers were retained for qualitative synthesis (Figure 2, see Annex 7.1 page 40 for final list). Most papers (n = 10) reported US-based studies, whilst others were based in Hong Kong, Australia and Sweden (Annex 7.1). For the qualitative synthesis of these retained papers, the following research questions were investigated:

- RQ1: What were the study objectives?
- RQ2: How is the HyFlex model being studied defined?
- RQ3: What is the level of flexibility offered to students in HyFlex courses?
- RQ4: What subjects are being taught through HyFlex?
- RQ5: What are the finding highlights from these studies?

The findings of the analysis as they relate to each research question is presented in the following sections.
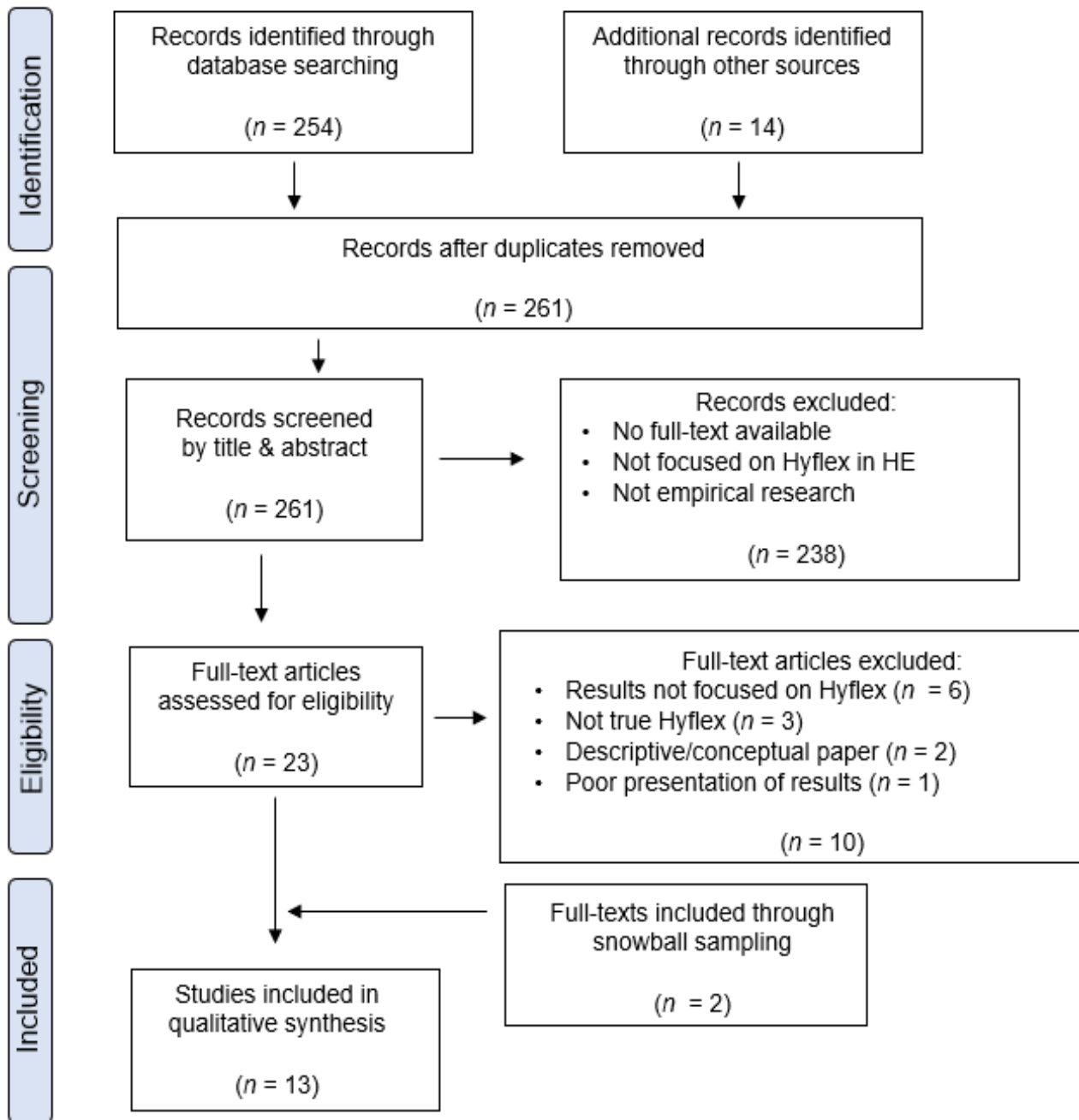
Figure 2. PRISMA reporting schematic for systematic literature review of HyFlex in HE.

3.2   RQ1: What were the study objectives?

The study objectives of each paper were reviewed. Objectives were categorised based on whether they focused on staff (*n* = 3) or students (*n* = 10). Three objective categories were identified: (1) Examine the effect of HyFlex on student-related constructs, (2) Obtain perceptions of HyFlex and (3) Other (Figure 3, full table in Annex 7.1).

Examine the effect of HyFlex on student-related constructs: Six papers featured studies that examined the effect of HyFlex delivery of a course/module on student performance/engagement (Drea, 2022; Hapke et al., 2021; Magana et al., 2022; Mentzer et al., 2023; Rhoades, 2020; Sowell et al., 2019). Drea (2022), Magana et al. (2022), Mentzer et al. (2023), and Rhoades (2020) investigated the impact of HyFlex on student academic performance, as determined by SAT scores (Mentzer et al., 2023), quizzes (Drea, 2022), assignments (Drea, 2022; Magana et al., 2022), and examination grades (Drea, 2022; Magana et al., 2022; Rhoades, 2020). Rhoades (2020) and Magana (2022) also looked at the impact of HyFlex delivery on student satisfaction, as did Sowell et al. (2019). Hapke et al. (2021) looked at the impact of HyFlex on student engagement, namely emotional, behavioural and cognitive engagements.
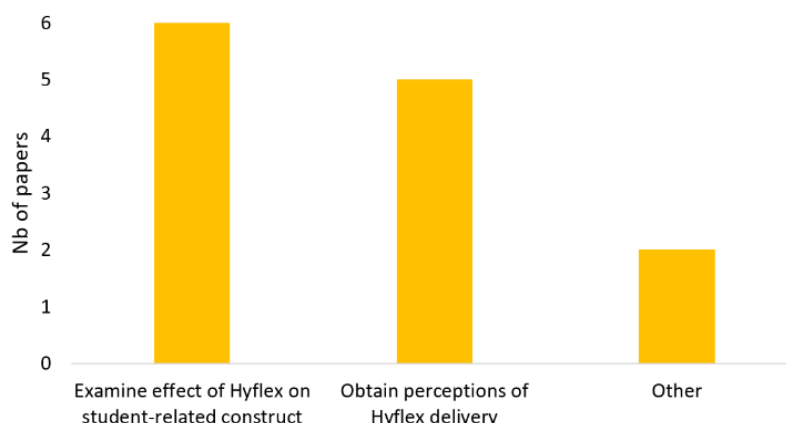

Figure 3. Systematic review analysis: study objective categories.

Obtain perceptions of HyFlex delivery: Five papers feature studies that aimed to gather student (*n* = 3) or staff (*n* = 2) perceptions of HyFlex delivery (Binnewies & Wang, 2019; Eduljee et al., 2023; Kohnke & Moorhouse, 2021; Penrod, 2023; Romero-Hall & Ripine, 2021). Eduljee et al (2023) sought to gain students' perceptions of a course that utilised both HyFlex and Hybrid modalities. They focused on pedagogical strategies used by instructors in classes. Students were also asked to respond to nine Likert-Type statements regarding their course, such as 'My ability to learn improved in a HyFlex class'. Binnewies and Wang (2019) gathered student feedback on resources used in HyFlex classes, such as pre-recorded video-lectures. (Kohnke & Moorhouse (2021) sought students' perceptions on HyFlex as an instruction model, including what they found most useful and challenging. Both Penrod (2023) and Romero-Hall & Ripine (2021) explore staffs' perceptions of HyFlex implementation. Romero-Hall & Ripine (2021) sought to determine staff readiness and recommendations on required resources, whilst Penrod (2023) gathered benefits, challenges and recommendations for future practice.

Other: Two papers included in this analysis had unique objectives (Leijon & Lundgren, 2019; Malczyk, 2019). Leijon & Lundgren (2019) set out to explore how lecturers delivering content through a HyFlex model navigated and utilised space in their teaching. Malczyk (2019) sought to find out how students utilise the choices offered through HyFlex to meet their unique needs.

In summary, most papers included this analysis featured studies that aimed to examine the effect of HyFlex implementation on student-related constructs or obtain stakeholder perceptions.

3.3 RQ2: How is the HyFlex model of interest being defined?

Most (*n* = 8) of the papers analysed supported their study using a definition provided by creator of the HyFlex model, Brian Beatty. In his book, *'Hybrid-Flexible course design'* Beatty (2019, p.15) defines the HyFlex model as:

> *"In a Hybrid Flexible (HyFlex) Class, students can choose to attend class either in an assigned face-to-face environment or in an online environment, synchronously or asynchronously. Online technology is primarily used to provide students with flexibility in their choice of educational experience, and to communicate with the faculty member inside and outside of office hours."*

A key tenet of this definition of HyFlex is that students have the flexibility of choice of delivery mode on how they will engage in their course. As this definition formed the basis the inclusion criteria for this systematic review (i.e., the HyFlex model being studied needed to include student choice) it is unsurprising that most studies centred their rationale on this definition (Table 2).

However, six papers did not use this definition exactly (Table 2). Hapke et al (2020) argue that they modified Beatty's original model (2014) to extend beyond face-to-face learning and online learning to include a third modality; synchronous online. However, synchronous online learning is included in the Beatty (2019) definition. Leijon and Lundgren (2019) orient their framework around a definition from Bower (2015). Four papers provided their own definition of HyFlex (Mentzer et al. 2023, Drea 2022, Romero-Hall 2021, Sowell et al. 2019). All of these definitions retain the idea combining Hybrid and Flexible, and providing students with a choice of delivery mode, which is central to Beatty's (2019) definition, and so were therefore retained in this analysis.

Table 2. Systematic review analysis: Definition of HyFlex delivery investigated.

Authors (Year)	HyFlex definition	Category
Eduljee et al (2023, p2)	"Hybrid design is simply the combined utilization of an in-person, classroom learning environment, and technology-oriented participation, often referred to as online, remote, or virtual learning (Beatty 2019; Shek et al. 2022). The HyFlex model is often modified, customized, or blended with other types of instructional methods based upon the needs of the institution, professor, discipline, and internal/external constraints"	Beatty definition
Mentzer et al (2023, p.9)	"We define Interactive Synchronous HyFlex model as an instructional model that provides an interactive, engaging, and equitable classroom experience for students regardless of whether they choose to join each class meeting face-to-face or remote synchronously"	Own definition
Penrod (2023, p.99)	"The University's definition of HyFlex aligns with Beatty's principles of HyFlex learning…"	Beatty definition
Drea (2022, p.4)	"The Choice Model delivers in-person instruction that is simultaneously broadcast using Zoom, with students allowed to attend using either mode (in-person or Zoom) and to switch modes at their own discretion"	Own definition
Magana et al (2022, p.2)	"HyFlex is a form of blended learning that flexibly combines face-to-face and remote instruction (Beatty, 2014), "blending synchronous online student attendance and face-to-face student attendance (hybrid) in a single course and allowing students to choose when and how they attend (flexible)."	Beatty definition
Lucas and Moorhouse (2021, p.232)	"The HyFlex mode is an instructional approach designed to give students greater control over their learning and course engagement modes. HyFlex allows students to choose in-person instruction or online instruction in real-time from a remote location"	Beatty definition
Romero-Hall (2021, p.2)	"Hybrid Flexible instruction (HyFlex) refers to a combination of both online and face-to-face instruction. It allows students who are unable to physically attend class sessions to be virtual attendees with real-time or asynchronous interactions with the instructor and their in-person classmates"	Own definition
Hapke et al (2020, p.154)	"Specifically, we extend a model of hybrid learning called HyFlex (Beatty, 2010) to a 3-in-1 Hybrid learning environment to capture our effort in combining three learning modalities in one course: face-to-face, synchronous online, and asynchronous online to maximize flexibility while driving three levels of engagement in large classes: emotional, behavioural, and cognitive for academic success"	Extended Beatty definition
Rhoads (2020, p.21)	"A hybrid course that enables students to attend the course in person, online, or both according to the scheduling needs of the student. No percentage of in person attendance is required if the equivalent online attendance requirements are met. This type of course is sometimes referred to as a 'Hybrid Flexible course' (Beatty, 2010)"	Beatty definition
Binnewies and Wang (2019, p.2)	"The term HyFlex refers to courses that are designed in online mode as well as face-to-face mode (hybrid) and allow students to complete any part of the course in either or both of these modes (flexible) (Beatty, 2013). The motivation for this format is to offer the benefits of online mode, such as the convenience to study in any place at any time"	Beatty definition
Leijon and Lundgren (2019, p.1)	"HyFlex (hybrid and flexible) course design is a blended form of teaching that combines physical spaces, virtual spaces, and face-to-face interaction with online learning (see Bower et al. 2015)"	Bower (2015) definition
Malczyk (2019, p.415)	As defined and implemented by Beatty (2006), HyFlex blended learning is a combination of hybrid learning and flexible learning. Hybrid learning is incorporated as class content is offered in both face-to-face and online modalities. Flexibility is introduced since the power to choose what blended learning means is placed in the hands of each student who can choose on a continuous basis whether to attend online or in the traditional face-to-face classroom (Beatty, 2014).	Beatty definition
Sowell et al (2019, p.6)	"The HyFlex course design incorporates both online and F2F teaching, allowing students the option whether to participate in F2F course activities or to complete those activities online without physical attendance in a classroom. The appeal of a HyFlex course is more than being a "one-size fits-all approach" to traditional teaching; it allows students to customize their learning experiences based on a host of variables, such as impacted schedules and limited classroom space"	Own definition

3.4 RQ3: What is the level of flexibility offered to students in HyFlex courses?

Although all the papers included in this synthesis oriented HyFlex around the central ideas of hybrid, flexibility and student choice in delivery modes, there may be variety on how this choice is provided to students. Therefore, the third research question in this analysis was 'What is the level of flexibility offered to students in HyFlex courses?'.

Each paper was reviewed to identify the choice of delivery modes offered, when and how students choose the delivery mode and from this a level of flexibility of Low, Medium or High (Figure 4, see Annex 7.1 Table). The paper by Romero-Hall & Ripine (2021) was excluded from this analysis as it did not feature a specific course that was implemented via HyFlex. In two papers it was unclear how or when students choose to attend their course material (Eduljee et al., 2023; Penrod, 2023), so these were marked as 'Unknown' (Figure 4).
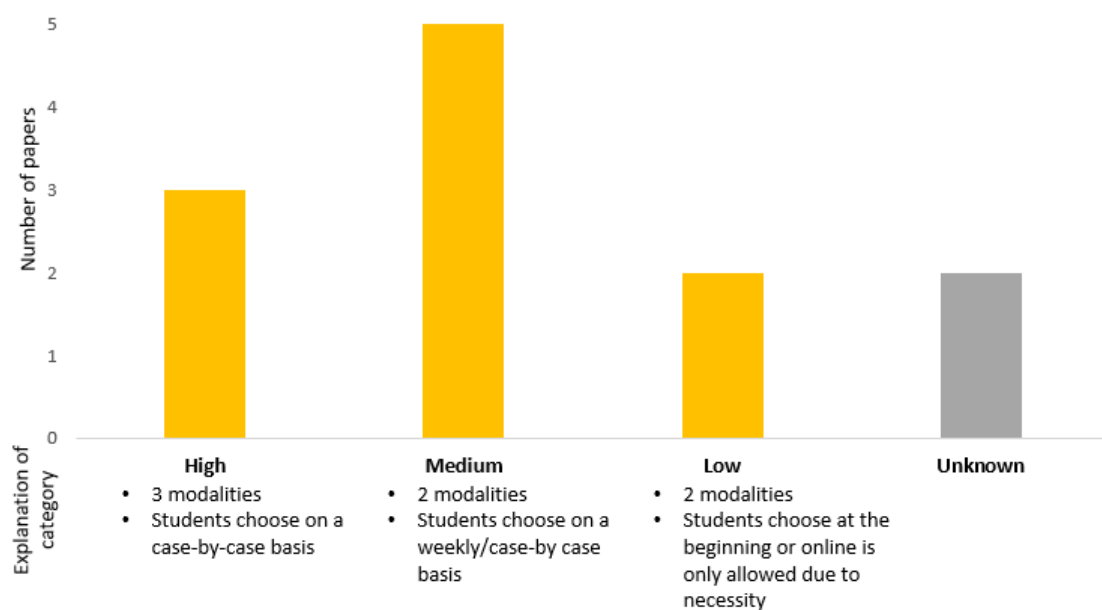
Figure 4. Systematic review analysis: Flexibility category assigned to each paper.

Two papers were assigned a 'Low' level of flexibility (Figure 4). Mentzer et al. (2023) describes the pivot of a course to 'HyFlex' during the COVID-19 pandemic, where attending remotely online was offered to students who could not attend due to social-distancing reason. However, students were expected to attend face-to-face in the classroom. Sowell et al. (2019) offered two modalities: face-to-face and asynchronous. Students were able to sample each format for a week before choosing one modality to continue the rest of the course. Five papers were assigned a 'Medium' level of flexibility as they only provided 2/3 modalities or restricted when students could choose (Figure 4). Three papers were assigned a 'High' level of flexibility as they offered 3 modalities and students could choose the modality that suited them for each lecture (Figure 4).

In summary, despite framing their course as being offered through the 'HyFlex' model, only three papers facilitate student choice in a manner that directly aligns to the definition provided by model creator Beatty (2019).

3.5   RQ4: What subjects are being taught through HyFlex?

The fourth question underpinning this synthesis was 'What subjects are being taught through HyFlex?'. In addition, as this report will ultimately serve to inform a project piloting HyFlex implementation in an Access course, it was of interest to determine whether any of the papers featured Access courses implementing HyFlex delivery.

Each paper included in this analysis was reviewed to identify the subjects and associated programmes being delivery through the HyFlex delivery model (see Annex 7.1). One paper (Romero-Hall & Ripine, 2021) was excluded from the analysis as it did not feature a specific course. Most (n = 9) specified an undergraduate course, two did not explicitly say so was assumed undergraduate, and one was about a postgraduate module. There were a range of subjects being taught across the papers, including science, arts and business. None of the modules featured in these papers were linked to Access courses, suggesting a pedagogical gap of HyFlex provision in courses designed for Access students.

3.6   RQ5: What are the finding highlights from these studies?

The final research questions guiding this synthesis was 'What are the key findings from these studies?'. These are summarised below.

3.6.1   *HyFlex has little effect on student academic performance*
Drea (2022), Magana et al. (2022), Mentzer et al. (2023) and Rhoades (2020) reported that when compared to face-to-face, HyFlex delivery had no statistically significant effect on student academic performance. However, Mentzer et al (2023) observed that students in the face-to-face modality had more extreme grades (i.e. more Fs and As) in their final examinations compared to students that attended some classes remotely. Interestingly, both Drea (2022) and Hapke et al. (2020) noted that students with lower GPA scores tended to choose online modalities, and once GPA scores were controlled for there was no difference between modalities on student performance in exams.

3.6.2   *Students appreciate the flexibility offered through HyFlex but ideally prefer face-to-face*
Students appreciating the flexibility offered through the HyFlex model is a common finding theme identified in the papers included in this synthesis. Rhoades (2020) reported that students appreciate the flexibility offered through HyFlex and that it has a positive impact on their learning, citing benefits such as decreased stress and increased work/life balance. Drea (2022) reported that students preferred having a choice in delivery modality compared to not having a choice. Interestingly, although students could choose how they engaged on a case-by-case basis, once they found a modality that suited their needs, they typically attended classes in the same way. Students in Hapke et al. (2020) paper reported to prefer having a fully Hybrid course, even they think that face-to-face learning is best suited for most of their learning needs. Similarly, Sowell et al. (2019) found that although students in online-online streams valued the option and convenience of the format, they still felt that they preferred face-to-face lectures. This mirrors what was found by Eduljee et al. (2023); most students (66.9%) appreciated that flexibility to attend class in-person or virtually, yet only 38.4% preferred the HyFlex modality compared to face-to-face. Malczyk (2019) also indicated that face-to-face was the most preferred modality for students.

Thus, the findings in this synthesis suggest that whilst students greatly appreciate the flexibility and choice offered by the HyFlex model, many would still prefer to attend activities in-person face-to-face. This suggests that students may be choosing online options due to factors other than personal learning preference. Indeed, Sowell et al. (2019) reported that 'Scheduling conflicts' was the second most cited reason for students choosing online modalities. The top

cited reason was 'preference to work from home', however it is unknown what is dictating these preferences. Along this same line, Malczyk (2019) asked students to predict at the beginning of the course which modality they would choose for each lecture. Students predicted that they would attend face-to-face more often than they actually did. Only 3/18 students attended each class face-to-face, yet at the end most students indicated that face-to-face was the preferred modality. Students cited benefits attending online such as being able to pick up extra paid work or engage in family activities. This suggests that students would ideally prefer to attend lectures face-to-face but are unable to due to other factors. This emphasises the role that HyFlex may play in providing a more equitable access to students who may have a variety of external challenges impacting their learning experience.

3.6.3   Staff training and suitable technology is crucial for HyFlex success

Another common theme identified in this synthesis was the importance of staff training and suitable technology in the successful implementation of HyFlex delivery. Eduljee et al. (2023) reported that 'Technology issues' was the top-most cited aspect of HyFlex that students did not like. Kohne & Moorhouse (2021) identified 'video conferencing software' as a main theme in interviews with students. This is strongly reflected in staff perceptions of HyFlex. For example, Penrod (2023) indicated that 'managing technology was a concern' amongst surveyed staff, while Romero-Hall & Ripine (2021) reported that 'synchronous software, video equipment and reliable equipment' were resources deemed as highly important by staff.

Furthermore, staff interviewed by Romero-Hall & Ripine (2021) strongly emphasised the importance of training, workshops, seminar and webinars as supports. Indeed, 24.64% of staff surveyed felt that they were not knowledgeable enough about HyFlex to be able to identify which resources were required, which in itself indicates the need for training. In fact, Romero-Hall & Ripine (2021) also identified that the staff that felt most capable to facilitate HyFlex teaching were those that had obtained some sort of formal training on the internet. Penrod (2023) also reported that 'faculty training and best practices' and 'learning community' was the most highly cited recommended organisations supports by surveyed staff.

Exploration of delivery modality of foundational access courses in HE in Ireland

4

4 Exploration of delivery modality of foundational access courses in HE in Ireland

This section gives an overview of access programmes offered by Higher Education Institutions (HEIs) in Ireland, and the delivery modalities that they use. This was achieved through a combination of desk research and surveys. To gather information on courses delivered by HEIs that are not part of N-TUTORR (the seven IUA universities excluding TU Dublin), their websites were examined (in September 2023). To gather information on foundational access courses delivered by N-TUTORR institutional partners (ATU, DkIT, IADT, MTU, SETU, TU Dublin and TUS), an MS forms survey was administered via institutional leads (see Annex 7.2 for the survey questions).

4.1 Foundational access courses delivered by HEIs not part of N-TUTORR

First, out of the seven IUA universities (excluding TU Dublin), four offer a foundational access course; Trinity College Dublin, University College Dublin, University of Limerick and University of Galway (Table 3). Three courses (TCD, UCD and UoG) target Young Adults and Mature Students, whilst the foundational access course at UL only targets Young Adults (Table 3). In terms of length, most follow the academic year, except UL which is a much shorter course at 13 weeks (Table 3). Moreover, the UL course focuses on 'Academic Readiness' such as Informatics and Transition to University (Table 3). The courses at TCD and UCD offer 'Field Introduction' subjects, via two streams (broadly categorised as Arts or Science, Table 3). UoG offer both Academic Readiness and Field Introduction subjects and students must complete subjects related to both (Table 3).

The information available via university websites and application guides does not include any reference to HyFlex (Table 3). Three of the universities did not indicate how their course content is delivered. UCD provided a comprehensive overview of each course module, including delivery mode. Whilst some modules use blended mode of delivery, a mixture of face-to-face, online and independent study, it is unclear whether students have a choice in this i.e. whether or not it is HyFlex delivery.

Table 3. Foundational access courses delivered by HEIs not part of N-TUTORR

Uni	Info. source	Target Cohort	Length	Type	Subjects	Delivery mode
TCD	(Trinity College Dublin, n.d.)	Young adults & Mature students	1 academic year: Full-time	Field Introduction	Two streams: (i) Arts & Social Science (ii) Science	Unknown
UCD	(University College Dublin, n.d.)	Mature students	1 academic year: Part-time	Field Introduction	Two streams: (i) Arts, Humanities, Social Sciences and law, (ii) Science, Engineering, Agricultural science and Medicine	Blended: face-to-face, online and independent study
UL	(University of Limerick, n.d.)	Young Adult	13 weeks: Full-time	Academic Readiness	Informatics, Transition to University, Personal Development, study skills, logical problem solving, life skills	Unknown
UoG	(University of Galway, n.d.)	Young adults & Mature students	1 academic year: Full-time	Field Introduction and Academic Readiness	Core support topics (e.g. academic study skills) and choice of 4 academic subjects from the four colleges	Unknown

4.2   Accredited foundational access courses delivered by N-TUTORR institutions

Here, the results from the MS forms survey administered via the N-TUTORR institutional leads are described (see section 7 p.40 for the survey questions). An in-depth survey approach was taken with N-TUTORR partner institutions, rather than relying on publicly available information on websites, to identify potential access courses to pilot a HyFlex model under the N-TUTORR programme. Each N-TUTORR institutional lead was sent a link to complete the survey. In some cases, the survey was completed by the institutional lead, in others it was sent a person(s) at the institution best placed to answer the questions. In at least one case (SETU), an N-TUTORR project team member met with representatives from each campus and collated and submitted one response for the institution. In this way, the N-TUTORR institutions leads acted as conduits of information. In the case of ATU, the survey was completed by two persons: responses were merged into one representative response.

In total, there are currently nine accredited access courses provided by ATU, DkIT, TU Dublin, TUS and SETU (Table 4). Six of these courses are designed for young adults or mature students. Dundalk IT, TU Dublin and SETU deliver foundational access courses specifically for international students. SETU deliver a short access course; Certificate in Learning to Learn; that is tailored for women from the Irish Traveller community (Table 4). Available spaces are reflective of the relative size and available demand and supply of the institutions; larger institutions such as ATU and TU Dublin have upwards of 150 spaces per academic year, whilst smaller institutions such as TUS and SETU cater for smaller groups. Most courses (n = 7) are full-time and the length of a typical undergraduate academic year: 9 months. The Certificate in Learning to Learn facilitated by SETU is the shortest access course: 12 weeks part-time, as dictated by the specific needs of their target cohort. Upon successful completion of most of these courses, students are guaranteed entry courses at the host institution, with exceptions. Most courses offer a combination of subjects related to Field Introduction and Academic Readiness. In such courses, students generally have a choice of field subjects within a chosen discipline available at the institution e.g., Science or Commerce (Table 4).

Table 4. Accredited foundational access courses provided by N-TUTORR partners

TU (Campus)	Course name	Target Cohort	Typical nb. places	Length	Course Type	Eligibility to progress to UG course	Subjects
ATU (Donegal)	Certificate for Access in Higher Education	Young Adults (Returning and YouthReach) and Mature students	50-75	9 months (26 weeks), part-time	Field introduction	Yes – to any eligible programme although those with limited spaces will offer first to those with highest GPA	Business & commerce (including management, marketing, accounting, economics and finance); Law and policy; Engineering (including manufacturing and construction);Information and communication technologies (including computer science);Social sciences; Arts and humanities (including drama and theatre);Sciences (including physics, chemistry, biology, geography; Mathematics (including statistics);Education and teaching
ATU (Galway and Mayo)	Foundational studies diploma (collaboration with University of Galway)	Young adults & Mature students (Separate courses)	75-100	9 months: full-time	Field Introduction and Academic Readiness	Yes, to any eligible programme (no need to achieve a specific grade)	Core support topics (e.g. academic study skills) and choice of 4 academic subjects from the four colleges
Dundalk IT	Certificate in Foundation Studies	International students	20+	9 months: full-time	Field Introduction and Academic Readiness	Yes, to any eligible programmes subject to achieving specific grades	English foundation level, Introduction to research & study skills, Intercultural competence, Orientation, ICT, Introduction to communication skills, Essential mathematics, Exploring Western culture, Introduction to entrepreneurial skills, one elective per semester.
TU Dublin	Access Foundation programme	Young adults & Mature students (those with socioeconomic disadvantage)	150	9 months, full-time	Field Introduction and Academic Readiness	Yes - students who successfully complete the programme will be offered a place on a suitable undergraduate course at TU Dublin through a facilitated entry process.	(i) Complete compulsory core modules (Intro to HE, Applied writing, Communications, Study skills, Research skills, Information technology, Mathematics (ii) 2 of the following modules: humanities, social sciences, marketing, financial accounting, computer science fundamentals, engineering, intro to chemistry, fundamental physics, human biology, art portfolio

TU Dublin	International Foundation Year Programme	International students	Variable	9 months, full-time	Field Introduction and Academic Readiness	Yes - upon successful completion students are guaranteed a place on the undergraduate programme of their choice at TU Dublin.	(i) 6 core modules: English for academic reading & writing, communicative competence in English, applied writing, maths, information technology, intro to HE (ii) 2 elective modules from 4 major streams: engineering, science, business, and social science
TUS Midlands	Access Programme	Persons 22 years and older	20-26	9 months, full-time	Field Introduction and Academic Readiness	Yes - upon successful completion students are guaranteed entry to the majority of Level 6 and Level 7 courses with a few exceptions such as Nursing, Veterinary Nursing and Design courses that require a portfolio.	Communications and Study Skills, Mathematics, Information Technology, Educational Guidance, Business Studies and Finance, Social Studies, Science, Engineering
TUS Midwest	Certificate in Transition to Higher Education programme	Young adults & Mature students	12-24	9months, part-time	Field Introduction and Academic Readiness	Yes - upon completion of this programme, students wishing to progress to a TUS undergraduate programme of study must meet the Institute's entry criteria for their programme of choice.	Mathematics (including statistics); Information and communication technologies; Study skills; Academic writing; Digital/ICT skills; Career development; Academic technology;
TUS Midwest	Certification in Foundation studies for International Students	International students	20-30	9 months, full-time	Academic Readiness	Yes – upon completion of this programme, students wishing to progress to a TUS undergraduate programme of study must meet the University's entry criteria for their programme of choice	Personal Development, Intercultural Studies, Communications, Mathematics and Calculations, Learning and Academic Skills Development, Research Skills, ICT, Computer Applications, Digital Literacy, English for International Students
SETU	International Foundation Programme	International students	15	9 months, full-time	Academic Readiness and Field Introduction	Yes- students that complete this programme and improve their English language proficiency will be offered a place on the programme for which they initially applied	English for professional communication; Information technology; Learning to learn; Introductory maths; Modules from Management, Engineering, Science or Computer systems.
SETU	Certificate in Learning to Learn	Minoritized community groups e.g. Traveller Women	<20	12 weeks, Part-time	Academic Readiness and Field Introduction	No	Academic reading and writing techniques, Introduction to social studies.
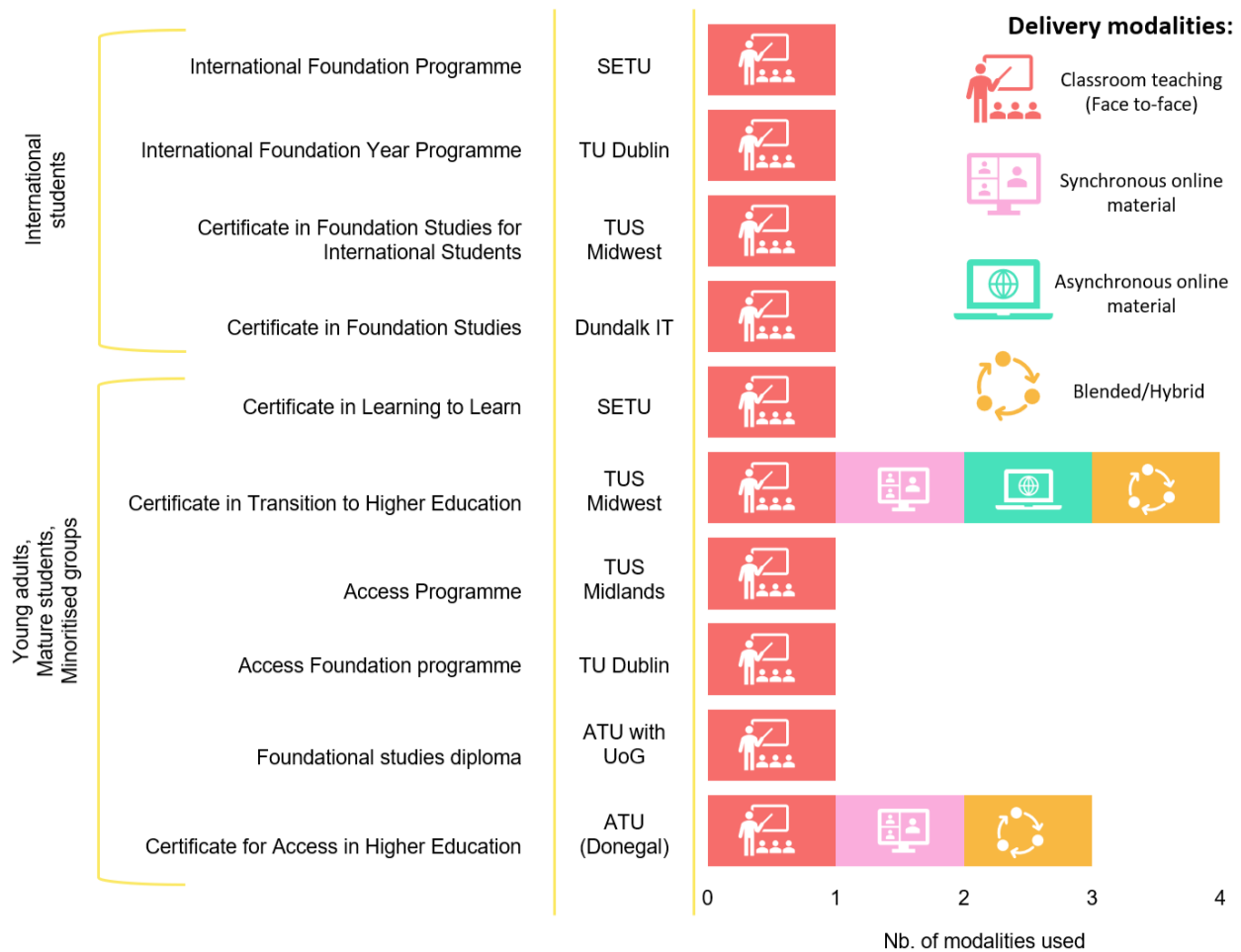
Figure 5. Delivery modalities of N-TUTORR access courses. Information on delivery modalities was taken from relevant university websites and may be out of date or incomplete.

Looking at the delivery modalities of these access courses, all feature some element of classroom/face-to-face teaching (Figure 5). In fact, eight of the courses deliver content only through face-to-face teaching (Figure 5).

The survey respondent for SETU noted:

"The current learners on the Certificate in Learning to Learn have a high level of need and a hybrid delivery would not suit the current cohort or expected next cohort of students"

This is a good reminder that despite the recent trend of HyFlex learning in the literature and practice, it is essential that the chosen delivery modality is in alignment with students' actual needs, as in this case. Moreover, all of the courses that cater specifically towards international students employ only classroom teaching; it would not make much sense for an international foundation year to be HyFlex, as being integrated into the local culture and language is a key component of the experiential learning experience. Any foundational access course that seeks to pilot a HyFlex model in their teaching should first carry out a needs assessment to determine whether it is something this is needed by students, and also conduct formative evaluation throughout to maximise efficacy.

Two courses have a wider range of delivery modalities; the Certificate for Access in Higher Education (ATU Donegal) and Certificate in Transition to Higher Education (TUS Midlands). According to the information compiled here, none of the courses currently use HyFlex delivery.

4.3   Other foundational access courses and support

Although the purpose of this survey was to gather information on the provision of active, accredited foundational access courses, other non-accredited courses and support tools were also mentioned in responses (Table 5). It should be noted that this is not a comprehensive overview of the provision of such resources provided by N-TUTORR partner institutions, as other respondents may have decided not to include such information in the survey. However, it does give a small insight into other supports available.

Table 5. Other foundational access and support tools provided by N-TUTORR partners. These were courses and tools mentioned in survey responses. This is not a comprehensive list of the non-accredited provision by N-TUTORR partners, as other respondents may have decided not to include such information as it was not the focus of the survey.

TU	Course name	Purpose	Facilitation	Delivery mode	Notes
ATU	My Career Path online career development tool	Identify student career strengths and link to sectors	Self-directed	Online asynchronous	Not accredited
ATU	HigherEd4All foundation course	Introduce students to academic skills and academic writing	Self-directed	Online asynchronous	Not accredited
SETU (Waterford)	Certificate in study skills (SPA, Level 6, 10 ECTs)	Initially developed with industry to support workers to access third level programmes through RPL	Lecturer/Tutor-facilitated	Hybrid/Blended learning	Currently not active: Interest in rebooting under N-TUTORR programme; CTEL expertise in HyFlex delivery
TUS (Midlands)	ChangeMakers Mentoring Programme	Learners gain insight into higher education learning and develop a belief of their own capabilities	Lecturer/Tutor-facilitated	In-person	Not accredited

The ATU survey response mentioned two supports: a non-accredited foundational access course, and an online career development tool entitled 'My Career Path'. Both courses are asynchronous and self-directed. The non-accredited foundational access course aims to *"…support students before they join university in key areas such as academic skills and academic writing to help students feel more confident when they begin their academic journey"*. The course features fifteen interactive modules (divided in two categories: academic skills and academic writing) that are completed at a pace set by the student. The course is currently unsupported, but the respondent noted that it may serve as a supporting resource that would complement a blended or hybrid course. 'My Career Path' is an online career development tool that uses a third-party online questionnaire to help learners to identify their career strengths and weaknesses. The tool then leads learners on a journey of self-reflection to help them to connect their newly identified strengths to complimentary career sectors.

The SETU survey response mentioned an accredited foundational access course that is no longer active, but may be offered again in the future. The Certificate in Study Skills course was a level 6 Special Purpose Award (10 ECTs) delivered by SETU Waterford that was initially developed with industry partners to support workers to access third level programmes through the RPL project. This certificate is a key example of the strong links between the TU/IT sector and local regional needs. When active, the course was lecturer-facilitated, using a hybrid modality. Whilst the course is not currently active, there is high level of interest from the

department of teaching and learning to reboot this course if it were to be considered for the N-TUTORR HyFlex pilot. The embedded Centre for Technology Enhanced Learning (CTEL) has *"expertise in HyFlex and flexible teaching and learning"* (comment from SETU survey response) which would be an asset in the event of a pilot.

TUS Midlands operate a six-week mentoring programme called ChangeMakers, which aims to develop mentees' insights into higher education learning and develop their belief in their own capabilities (Table 5). Mentees would identify from priority groups as defined in the National Access Plan. The ChangeMakers Mentoring programme consists of interactive workshops where university student mentors join the sessions and act as supportive participants, co-investigating topics alongside the target group participants. The programme focuses on issues that are meaningful to the mentees, such as mental health, barriers to education, economic inequality, power, leadership and change.

Conclusions and Recommendations

5

5 Conclusions and recommendations

This report sought to provide a snapshot of the provision of foundational access courses across Higher Education Institutions in Ireland, with the goal of informing recommendations for the implementation of HyFlex delivery in an Access foundational course provided by an N-TUTORR partner institution, as part of Stream 1 WP 1.1. Specifically, the report aimed to give an overview of several related areas; key terms and concepts related to widening access for higher education and teaching delivery modalities (Section 2), studies investigating the implementation of HyFlex in Higher Education (Section 3), and the provision and delivery modes of access foundational courses in Higher Education in Ireland (Section 4).

First, foundational access courses were defined in this report as courses that are designed to prepare learners to commence in a course of further study at higher education. They serve as but one facet of a multi-disciplinary approach that seeks to increase accessibility and inclusion in higher education as part of the national access plan.

Second, HyFlex is a delivery modality that has gained popularity in recent years due to the choice and flexibility it offers to learners. It is characterised by student choice, and unlike hybrid or blended learning, can only be considered HyFlex if students have full control over how they engage in their course material as best suits their needs.

Third, the systematic analysis described in this report found that most studies adhere to the Beatty (2019) definition of HyFlex. However, few of the studies featured in this analysis offered high flexibility to students as described by this definition. In addition, most studies focused on undergraduate students, and none featured foundational access courses, suggesting that the effect of HyFlex on access students' learning is an under-investigated area. Moreover, the analysis identified three common study findings: (1) HyFlex has no effect on academic performance, (2) students appreciate the flexibility HyFlex offers but would prefer face-to-face and (3) suitable technology and staff training are key to the success of HyFlex implementation.

Lastly, this report provided a brief snapshot of the provision of access foundational courses across the higher education sector in Ireland. An exploration of university websites indicated that four universities not part of N-TUTORR offer foundational access courses. Only TCD specified the delivery modalities employed in their course: blended, face-to-face, online, and independent study. A more detailed survey of N-TUTORR partners was conducted to help identify potential pilots. The findings of the survey indicated that there are at least nine foundational access courses provided by the TU/IoT sector. Most provide a mixture of 'Academic Readiness' and 'Field Introduction' subjects. Face-to-face-classroom learning is the most common delivery modality; no courses currently use HyFlex teaching. However, it should be noted that the HyFlex modality is not suitable for some targeted cohorts such as international students or those that require a high level of tutor-contact. Two active accredited courses were identified that may be a potential candidate for a HyFlex pilot as they already employ a wide range of delivery modalities: *Certificate for Access in HE* (ATU Donegal) and *Certificate in Transition to HE* (TUS Midwest).

Drawing from the above, this report has the following recommendations for the HyFlex pilot:

- The HyFlex model should be designed in alignment with the Beatty (2019) definition, providing students the choice of three learning modalities (face-to-face, online synchronous, and asynchronous) across course content. This will allow for comparison of pilot findings with models studied in the literature.
- Consider giving students a high level of flexibility in their choice i.e., the choice in how to participate for each lecture or class.
- HyFlex delivery in Access courses represents both a pedagogical and research-related gap. The findings of a HyFlex model pilot implemented in an Access course would be of interest to a wide audience of policymakers, practitioners, and researchers. Consider disseminating the findings of the pilot in a peer-reviewed research journal, in addition to practitioner dissemination channels.
- Whilst HyFlex delivery can offer great flexibility and agency to learners, students with lower levels of self-regulation can struggle to adapt. Care should be taken in a pilot with Access students, so as not to place students in an environment where they will fail to thrive. The HyFlex implementation should be evaluated for effectiveness of content delivery, facilitator competency, reliability of equipment, and impact on student-related constructs such as engagement, learning satisfaction and academic performance.
- Due to the dearth of knowledge of the experience of HyFlex delivery for Access Students, formative evaluation is strongly advised throughout the pilot implementation.
- As investigating the impact of HyFlex on student performance is a common objective in the literature, consider examining this in the pilot. Moreover, if the data is available, consider comparing exam/test results from the pilot cohort with those from previous years as a quasi-experimental method.
- In addition to monitoring which modality students choose over the course, consider exploring what motivated student choices through qualitative data collection. This may help determine whether students choose delivery modalities based on learning preference, or external factors such as being unable to attend lectures physically due to sickness, family-related responsibilities, clashing schedules, financial reasons etc.
- Providing reliable technology to facilitate HyFlex learning is paramount to successful and equitable implementation. There should be budget, time and resources allocated to purchase additional technology if needed, and to provide any potential training to facilitators.
- Consider developing the 'HigherEd4All' non-accredited foundational access course and the career strengths profiling tool 'My Career Path' delivered by ATU as a digital badge, to be incorporated in the N-TUTORR Student Digital Backpack. Furthermore, it may be highly beneficial to develop a learning pathway on the Student Digital Backpack platform specifically catered towards Access learners.

Future work also includes an additional green paper that outlines the current landscape of blended learning at higher education and how it impacts the student experience, not limited solely to HyFlex. The implementation of HyFlex delivery in Higher Education can offer a range of flexibility and choice to learners, which is an important tenet of the national access and equity plan. However, little is known about how HyFlex affects the learning experience for Access Students. The N-TUTORR pilot of HyFlex in a foundational access programme will serve as a valuable source of information for policymakers, practitioners, and researchers alike.
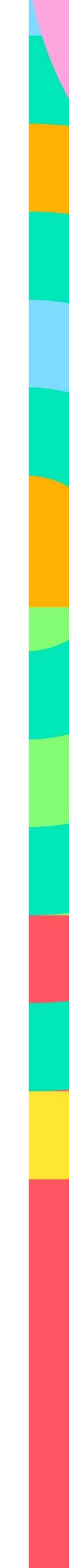
References

6

6 References

AHEAD. (2023). *Changing Landscape: Examining the experiences of tertiary education students with disabilities returning to post-lockdown learning*. https://www.ahead.ie/userfiles/files/shop/Changing%20Landscapes_supplied_digital.pdf

Beatty, B. J. (2019). *Hybrid-Flexible Course Design Implementing student-directed hybrid classes*. https://jcu.edu/sites/default/files/2020-07/E-Book%20Hybrid%20Flexible%20Course%20Design-by-Beatty.pdf

Beatty, B. J. (2014). Hybrid Courses with Flexible Participation: The HyFlex Course Design. In L. Kyei-Blankson & E. Ntuli (Eds.), *Practical Applications and Experiences in K-20 Blended Learning Environments* (pp. 153–177). IG Global. https://www.igi-global.com/gateway/chapter/92972

Binnewies, S., & Wang, Z. (2019). *Challenges of Student Equity and Engagement in a HyFlex Course*. https://doi.org/10.1007/978-981-13-6982-7_12?sid=semanticscholar

Colleges.ie. (n.d.). *Access & Foundation Courses*. Retrieved June 15, 2023, from https://www.colleges.ie/access-foundation-courses/

Drea, J. (2022). Improving learning outcomes through choice-based course delivery: The Choice Model. *Journal of Education for Business*, *97*(5), 335–342. https://www.tandfonline.com/doi/full/10.1080/08832323.2021.1960469

Eduljee, N. B., Murphy, L., Emigh-Guy, M., & Croteau, K. (2023). Student Perceptions about HyFlex/Hybrid Delivery of Courses during the COVID-19 Pandemic. *College Teaching*. https://www.tandfonline.com/doi/full/10.1080/87567555.2023.2208815

Hapke, H., Lee-Post, A., & Dean, T. (2021). 3-IN-1 HYBRID LEARNING ENVIRONMENT. *Marketing Education Review*, *31*(2), 154–161. https://www.tandfonline.com/doi/full/10.1080/10528008.2020.1855989

Higher Education Authority (HEA). (2022). *National Access Plan: A strategic action plan for equity of access, participation and success in higher education 2022-2028*. https://www.gov.ie/en/publication/b156c-national-access-plan-2022-to-2028/

Higher Education Authority (HEA). (2017). *National Plan for Equity of Access to Higher Education 2008-2013: Mid-term review*. https://hea.ie/assets/uploads/2017/06/Mid-term-Review-of-National-Plan-for-Equity-of-Access-to-Higher-Education.pdf

Howell, E. (2022). HyFlex model of higher education: understanding the promise of flexibility. In *On the Horizon* (Vol. 30, Issue 4, pp. 173–181). Emerald Publishing. https://www.emerald.com/insight/content/doi/10.1108/OTH-04-2022-0019/full/html

Kohnke, L., & Moorhouse, B. L. (2021). Adopting HyFlex in higher education in response to COVID-19: students' perspectives. *Open Learning*, *36*(3), 231–244. https://www.tandfonline.com/doi/full/10.1080/02680513.2021.1906641

Leijon, M., & Lundgren, B. (2019). Connecting Physical and Virtual Spaces in a HyFlex Pedagogic Model with a Focus on Teacher Interaction. In *Journal of Learning Spaces* (Vol. 8). *Retrieved from:* EJ1220576.pdf (ed.gov)

Magana, A. J., Karabiyik, T., Thomas, P., Jaiswal, A., Perera, V., & Dworkin, J. (2022). Teamwork facilitation and conflict resolution training in a HyFlex course during the COVID-19 pandemic. *Journal of Engineering Education*, *111*(2), 446–473. https://onlinelibrary.wiley.com/doi/10.1002/jee.20450

Malczyk, B. R. (2019). Introducing Social Work to HyFlex Blended Learning: A Student-centered Approach. *Journal of Teaching in Social Work*, *39*(4–5), 414–428. https://www.tandfonline.com/doi/full/10.1080/08841233.2019.1652226

McMullin, P. (2017). Access programmes and higher education outcomes. In *Economic Insights on Higher Education Policy in Ireland: Evidence from a Public System* (pp. 143–164). Palgrave Macmillan. https://link.springer.com/chapter/10.1007/978-3-319-48553-9_6

Mentzer, N. J., Isabell, T. M., & Mohandas, L. (2023). The impact of interactive synchronous HyFlex model on student academic performance in a large active learning introductory college design course. *Journal of Computing in Higher Education*. https://pubmed.ncbi.nlm.nih.gov/37359046/

Murphy, P. (2009). *Higher Education Access/Foundation Courses: A Research Report*. http://edepositireland.ie/bitstream/handle/2262/79887/Murphy%202009%20Access%20Courses%20Report.pdf?sequence=1

National Forum for the Enhancement of Teaching and Learning in Higher Education. (2021). *NEXT STEPS for Teaching and Learning: Moving Forward Together*. https://www.teachingandlearning.ie/vital/nextsteps/

O'Reilly, P. (2008). *The evolution of university access programmes in Ireland*. https://researchrepository.ucd.ie/entities/publication/63969ec3-cef7-4c8d-bc2c-8558d31b2aaf/details

Pathak, B. K., & Palvia, S. C. (2021). Taxonomy of higher education delivery modes: a conceptual framework. *Journal of Information Technology Case and Application Research*, *23*(1), 36–45. https://doi.org/10.1080/15228053.2021.1901351

Penrod, J. (2023). *Considerations for Implementing and Supporting Hybrid and HyFlex*. Available from ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection; ProQuest Dissertations & Theses Global (2856728532).

Rhoades, D. (2020). *Traditional, online or both? A comparative study of student learning and satisfaction between traditional and HyFlex delivery modalities*. Available from ProQuest Dissertations & Theses Global (27995688).

Romero-Hall, E., & Ripine, C. (2021). Hybrid flexible instruction: Exploring faculty preparedness. *Online Learning Journal*, *25*(3), 289–312. https://doi.org/10.24059/olj.v25i3.2426

Sowell, K., Saichaie, K., Applegate, &, Sowell, K., Saichaie, K., Bergman, J., & Applegate, E. (2019). High enrollment and HyFlex: The case for an alternative course model High Enrollment and HyFlex: The Case for an Alternative Course Model. In *Journal on Excellence in College Teaching* (Vol. 30, Issue 2). Available at: https://celt.miamioh.edu/ject/v30n2-Sowell_etal.pdf

Trinity College Dublin. (n.d.). *Trinity Access Programmes, Trinity Teaching and Learning*. Retrieved June 14, 2023, https://www.tcd.ie/trinityaccess/

University College Dublin. (n.d.). *UCD University Access Courses*. Retrieved June 14, 2023, from https://www.ucd.ie/all/cometoucd/applying/universityaccesscourses/

University of Galway. (n.d.). *Access Course for Higher Education -Mature Students*. Retrieved June 14, 2023, from https://www.universityofgalway.ie/access/mature-students/#:~:text=The%20Access%20Course%20is%20a%201%20year%20course,least%20three%20years%20duration%20at%20University%20of%20Galway.

University of Limerick. (n.d.). *Access to University Course (AUC)*. Retrieved June 14, 2023, from https://ulsites.ul.ie/access/access-university-course-auc#:~:text=The%20Access%20to%20University%20Course%20is%20a%20full-time,Access%20to%20University%20course%20has%20no%20course%20fee.

Annex

7

7   Annex

7.1   Summary table of research objectives systematic review papers

Authors (Year)	Title	Participant focus	Country	Objective code
Eduljee et al (2023)	Student Perceptions about HyFlex/Hybrid Delivery of Courses during the COVID-19 Pandemic	Students	USA	Obtain perceptions of HyFlex
Mentzer et al (2023)	The impact of interactive synchronous HyFlex model on student academic performance in a large active learning introductory college design course	Students	USA	Examine effect of HyFlex
Penrod (2023)	Faculty's Perspective on an Organizational HyFlex Implementation (Chapter from PhD thesis)	Staff	USA	Obtain perceptions of HyFlex delivery
Drea (2022)	Improving learning outcomes through choice-based course delivery: The Choice Model	Students	USA	Examine effect of HyFlex on performance
Magana et al (2022)	Teamwork facilitation and conflict resolution training in a HyFlex course during the COVID-19 pandemic	Students	USA	Examine effect of HyFlex
Lucas and Moorhouse (2021)	Adopting HyFlex in Higher Education in Response to COVID-19: Students' Perspectives	Students	Hong Kong	Obtain perceptions
Romero-Hall (2021)	Hybrid Flexible Instruction: Exploring Faculty Preparedness	Staff	USA	Obtain perceptions
Hapke et al (2020)	3-in-1 Hybrid Learning Environment	Students	USA	Examine effect of HyFlex
Rhoads (2020)	Traditional, online or both? A comparative study of student learning and satisfaction between traditional and HyFlex delivery modalities	Students	USA	Examine effect of HyFlex
Binnewies and Wang (2019)	Challenges of Student Equity and Engagement in a HyFlex Course	Students	Australia	Obtain perceptions
Leijon and Lundgren (2019)	Connecting Physical and Virtual Spaces in a HyFlex Pedagogic Model with a Focus on Teacher Interaction	Staff	Sweden	Examine spaces used in HyFlex delivery
Malczyk (2019)	Introducing Social Work to HyFlex Blended Learning: A Student-centered Approach	Students	USA	Examine level of HyFlex choice
Sowell et al (2019)	High Enrollment and HyFlex: The Case for an Alternative Course Model	Students	USA	Examine effect of HyFlex

7.2 Survey questions on foundational access courses

MS forms survey draft for information on HyFlex in access programmes

Section 1: Offerings, access, and accreditation of foundational access programmes at your institution

1) Which is your institution? [Single choice question]
    a. ATU
    b. DkIT
    c. IADT
    d. SETU
    e. MTU
    f. TU Dublin
    g. TUS

2) Does your institution offer a foundational access programme for entry to higher education? [Single choice question]
    a. Yes – the institution offers a single access course
    b. Yes – the institution offers multiple access courses
    c. No – *skip to end of survey*
    d. *I am not sure – skip to end of survey*
    e. *Other – please specify*

3) What is the name(s) of the foundational access programme(s)? [Open comment box]

4) Please enter the URL of any website where further information can be found [Open comment box]

5) Are these foundational access courses accredited? [Single choice question]
    a. Yes – all of our access courses are accredited
    b. Yes – some are accredited
    c. No – none are accredited
    d. Other – please specify

6) Does completion of this foundation access course(s) guarantee admission to a specific programme/s?
    a. Yes, to any eligible programme
    b. Yes, but only if a specific grade is achieved
    c. No

7) Feel free to add any further contextual information to your response above here: [Comment Box]

8) Typically, how many places are offered on the foundational access course(s) each year? [Open comment box]

9) What is the duration in months of the foundational access programme? [Single choice question]
    a. Follows typical undergraduate year i.e. 9 months
    b. 12 months
    c. Other (specify)

Section 2: Subjects, learning outcomes and provided supports

10) Which of the following academic subjects are offered in the foundational access course? *Tick all that apply* [Multiple choice question]

a) Business & commerce (including management, marketing, accounting, economics and finance)
b) Law and policy
c) Information and communication technologies (including computer science)
d) Engineering (including manufacturing and construction)
e) Social sciences
f) Arts and humanities (including drama and theatre)
g) Languages
h) Medicine, nursing and health sciences
i) Sciences (including physics, chemistry, biology, geography
j) Mathematics (including statistics)
k) Education and teaching
l) Other – please specify

11) Does the foundational access course offer any of the following supporting subjects: *tick all that apply*
a) Study skills
b) Academic writing
c) Academic technology
d) Digital/ICT skills
e) Career development
f) Other – please specify

12) Please provide the learning outcomes associated with the foundational access course [Open Comment box]

13) Please add here a brief description of any distinctive, unique or value-add services provided on the foundational access course(s) [Comment box]

Section 3: Programme delivery

14) Which of the following best describe the facilitation of the course? *Tick all that apply* [Multiple choice question]

a. Lecturer/Tutor-facilitated
b. Self-directed
c. Other (please specify)

15) Which of the following course content delivery formats are employed? *Tick all that apply* [Multiple choice question]

HyFlex definition: Students move among three alternative delivery options according to their choice: Face-to-face, online synchronous, or online asynchronous (Beatty, 2019; Educause, 2010; Calafiore and Giudici, 2021). To be considered 'HyFlex', students most choose their mode of content delivery.

a) Classroom teaching/lecturing (face-to-face)
b) Asynchronous online material
c) Synchronous online material
d) Blended/Hybrid learning
e) HyFlex (see given definition above)
f) Other – please specify

16) Please provide here any further description of how the course content in these foundational access courses are delivered [Open comment box].