APPENDIX 1: THEORY OF CHANGE MODELS

THEORY OF CHANGE MODEL: ONLINE MODULE	INPUT	OUTPUT		OUTCOMES		
	What we invest	Activity *What we do*	Participation *Who we reach*	Short-term *What results*	Mid-term *What results*	Long-term *What impact*
SITUATION *What needs change* **Project issue**: Data indicates that BTEC students do not do as well in progressing through university as 'traditional students' **Intervention issue:** Phase 1 findings show that BTEC students recognise the need for greater independence at university and identify various specific 'transition gaps' in academic preparedness.	Academic staff to develop online module content. IT staff to support online development. Publicity and administrative support to raise awareness of the online module. Research Fellow to pilot online module and evaluate results. Student participation.	Develop an online module that: 1. Explains the 'ethos' of university and how it differs from previous studies. 2. Provides a quiz for students to reflect and self-evaluate, i.e. identify their own 'transition gaps'. 3. Provides pointers to appropriate support and resources to address the 'transition	Pre-entry and first year students. Academic and professional services staff involved in teaching and supporting first year students.	Participation in online module by relevant students. Engagement with the quiz.	Discussion of online module results with personal tutors and other staff. Greater take-up of support services and resources resulting from self-evaluation. Students have greater self-confidence in their learning strategies. Students have more realistic expectations of university study.	**Project impact:** Reduced differential in student outcomes at degree award **Intervention impact:** Students are more proactive in identifying their own ongoing learning and support needs and seeking relevant support and resources. Students are more likely to progress to their second year.

		gaps' identified by each student.				
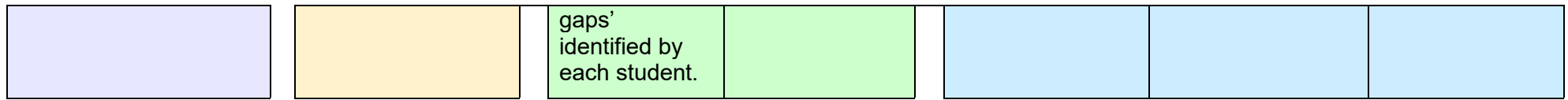
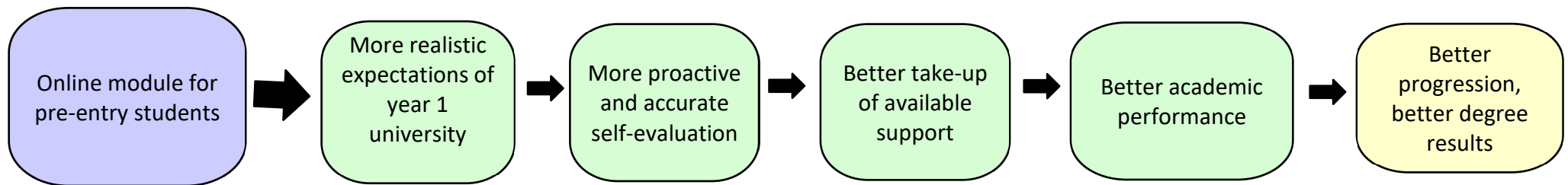| ASSUMPTIONS	EXTERNAL FACTORS
More accurate expectations about first year university will help students to bridge the transition gap more quickly and effectively.	Is the support offered at different HE institutions sufficiently similar that generic questions can be designed for the online quiz?
A more proactive attitude to identifying and seeking out appropriate support will have a positive impact on academic performance.	Will it be technically feasible to offer the online module to students before enrolment?
Staff will be supportive of the online module, and will be willing to promote it and engage in discussions about it.	Does the online module focus too much on the 'deficit model', i.e. highlighting areas for improvement? Will this be potentially demoralising for students at an early stage?

Logic model showing assumed causal relationships

Online module for pre-entry students → More realistic expectations of year 1 university → More proactive and accurate self-evaluation → Better take-up of available support → Better academic performance → Better progression, better degree results

THEORY OF CHANGE MODEL: PERSONAL TUTORING

INPUT	OUTPUT		OUTCOMES		
	Activity	Participation	Short-term	Mid-term	Long-term
What we invest	*What we do*	*Who we reach*	*What results*	*What results*	*What impact*

SITUATION

What needs change

Project issue:

Data indicates that BTEC students do not do as well in progressing through university as 'traditional students'.

Intervention issue:

On arrival at university students perceive the level of tutor support as being poor compared to that at their FE provider. Students are often aware that support (both academic and wellbeing) exists but fail to access it. They can sometimes identify areas of weakness in their academic performance but don't always know

INPUT — What we invest	OUTPUT Activity — What we do	OUTPUT Participation — Who we reach	OUTCOMES Short-term — What results	OUTCOMES Mid-term — What results	OUTCOMES Long-term — What impact
Academic staff time at each HE institution to develop guidance and monitor attendance IT support at each HE institution to develop recording system(s) Tutor time to provide enhanced tutoring Research Fellow to evaluate effectiveness of the intervention	Improve the experience of students being tutored by: 1. Making available to tutors (and encouraging use of) information on students' academic backgrounds, and where possible allocating students to tutors who have specialised knowledge of the students' discipline area and/or	All Year 1 students in participating HE institution departments Academic tutors (become more aware of student needs and the resources to support them) Academic and wellbeing support services (gain enhanced knowledge of student needs)	Students perceive academic tutoring to be a key support system during their first year of study at university. Students are more quickly able to identify areas for further development and to access support to address any gaps. Students' wellbeing improves as they feel better supported through	Student progression, retention and academic performance improve. Students are more likely to ask for help when they need it (having established good relationships with their tutors in the first year). Students are better-equipped to be aware of any skills gaps and to reflect on	**Project impact:** Reduced differential in student outcomes at degree award. **Intervention impact:** Tailored, supportive tutoring leads to reduced differentials in student outcomes. Better progression into Year 2. Students are more resilient due to their readiness to identify potential

how to address this. Staff don't always know much about their students' academic backgrounds and this can prevent them from having useful discussions about potential skills gaps.		educational background. 2.Providing improved guidance to tutors outlining their role and intended content of one-to-one meetings. 3.Developing an improved recording system for students and tutors to record the outcomes from tutor meetings. 4.Identifying the academic development and wellbeing needs of tutees and referring students to support as appropriate.		transition into HE. HE institutions are better able to identify and deliver the right support at the right times.	development needs (i.e. better independent learning).	problems and to seek help.

ASSUMPTIONS

Our theory/beliefs about why this will work:

Students unused to working with little oversight of their work are unsure as to how they should be studying, who to turn to for guidance, and how to access support where needed.

Personal academic tutoring should provide this oversight and build relationships with a tutor who can provide support and guidance.

Academic tutors and professional services staff will be supportive, and willing to undertake the additional work.

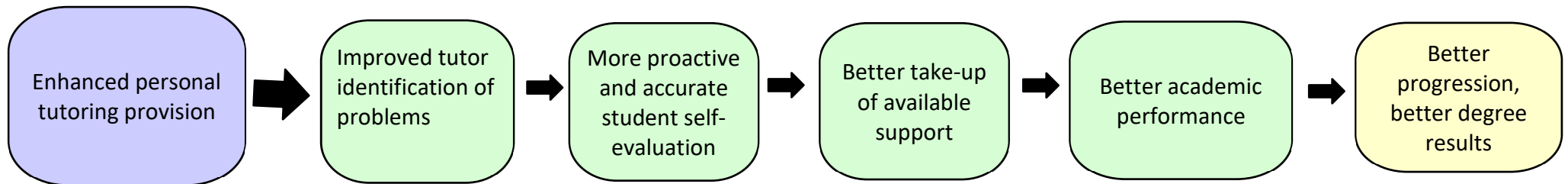IT systems will be sufficiently robust to support the intervention.

EXTERNAL FACTORS

Other social, cultural, economic factors which might influence the success of the intervention

Where academic tutoring is not compulsory, students may not engage. This may be especially true of students whose social background leads them feeling overawed by 1:1 tutoring.

Academic staff may be reluctant to invest time and resources in the intervention.

IT systems may not be robust enough to meet the requirements of the intervention.

Enhanced personal tutoring provision → Improved tutor identification of problems → More proactive and accurate student self-evaluation → Better take-up of available support → Better academic performance → Better progression, better degree results

THEORY OF CHANGE MODEL: MATHEMATICS SUPPORT	INPUT	OUTPUT		OUTCOMES		
	What we invest	Activity *What we do*	Participation *Who we reach*	Short-term *What results*	Mid-term *What results*	Long-term *What impact*
SITUATION *What needs change* **Project issue**: Data indicates that BTEC students do not do as well in progressing through university as 'traditional students' **Intervention issue:** Many BTEC students struggle with the Mathematics/Statistics on their programme of study. This intervention aims to support those students who have not studied mathematics post-16 to identify and address gaps in their knowledge and ensure that they are able to achieve their potential in their chosen programme.	Institutional lead at University C to oversee and ensure delivery. Academic leads/module leaders in each participating HE institution, ensuring relevant resources/ encouraging participation of students, etc. Input from mathematics/support staff, where this exists. Participation of BTEC students and students who have not studied mathematics post-16. Resources including 1-1 support, online/paper-based help sheets, online videos, etc.	Assess maths support provision in each institution, establish/renew contact (Oct 2017) Academic leads identify topics where support required (Oct 2017) Academic leads and support staff identify relevant resources (Oct 2017) Package of discipline-specific support materials assembled – including diagnostic tests, help sheets, online videos. (Semester 1) Peer support/1-1 support, etc. established/re-	All first year BTEC and other students who have not studied maths post-16 in the following disciplines/HE institutions: Sports Science and Business at University B and Business at University A. Support would be available to first year students who have studied mathematics post-16 but we would not expect uptake from this group. Academic leads, module leaders and personal tutors become more aware of	Students become aware of topics which they need to master and the resources. Students demonstrate increased confidence and skills and achieve improved results in quantitative modules. Students improve in independent learning. Module leaders and personal tutors have greater awareness of areas of difficulty and	Students able to choose from full range of module options without avoiding those requiring quantitative skills. Students better equipped to undertake employers' numeracy tests and hence in a stronger position to obtain placements and graduate employment Staff become aware of skills gaps in student cohort and seek to address this in programme	**Project impact:** Reduced differential in student outcomes at degree award **Intervention impact:** Improved progression from Year 1 to Year 2. BTEC students leave university with increased skills and confidence in mathematics and statistics. BTEC students secure improved placements and

	Staff time, including personal tutors, to encourage uptake. Staff time/materials to collect and analyse data.	invigorated – each HE institution to customise (Semester 2) Publicise, monitor uptake, collect and analyse data (Semester 2)	resources that are available. Support staff in HE institutions get involved with discipline specific support. Where applicable, peer mentors/peer-assisted learning leaders.	resources to support. Support staff have increased awareness of how mathematics is used in the disciplines and can use this to support all students from these disciplines. Peer mentors and Peer Assisted learning facilitators gain skills to enhance their employability.	redesign and development.	graduate employment. University senior managers become aware of issues with skills gaps and introduce policies to ensure inclusive programmes of study at their HE institution.

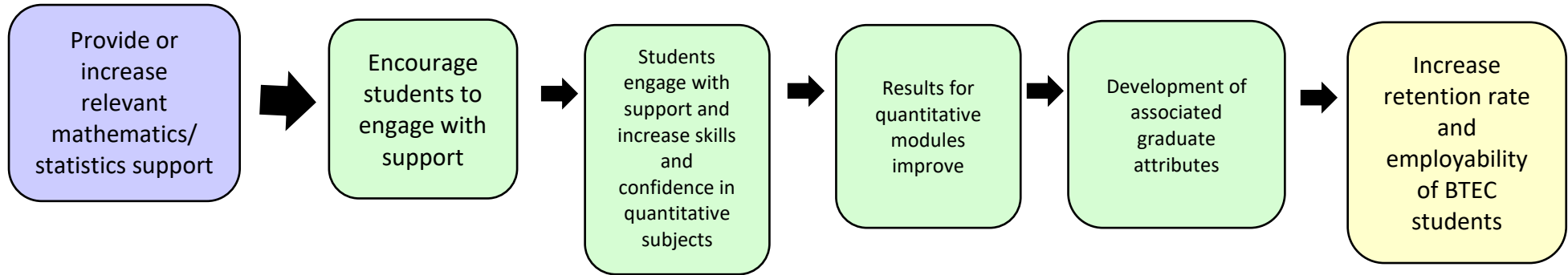| ASSUMPTIONS	EXTERNAL FACTORS
Our theory/beliefs about why this will work Students will avail themselves of the support. Encouragement to do so built into the intervention. Support provided will be address skills gaps and confidence.	***Other social, cultural, economic factors which might influence the success of the intervention*** Seeking help with mathematics can have stigma associated with it.

Logic model showing assumed causal relationships

| Provide or increase relevant mathematics/ statistics support | → | Encourage students to engage with support | → | Students engage with support and increase skills and confidence in quantitative subjects | → | Results for quantitative modules improve | → | Development of associated graduate attributes | → | Increase retention rate and employability of BTEC students |

THEORY OF CHANGE MODEL: ACADEMIC WRITING	INPUT	OUTPUT		OUTCOMES		
	What we invest	Activity *What we do*	Participation *Who we reach*	Short-term *What results*	Mid-term *What results*	Long-term *What impact*
SITUATION *What needs change* **Project issue**: Data indicates that BTEC students do not do as well in progressing through university as 'traditional students'. **Intervention issue:** The student and lecturer interviews both highlight that academic writing is a particular issue on entry to university – for BTEC students, but also for other students too.	Institutional lead at University A to oversee and ensure delivery. Involvement of FE BTEC tutors Input from mathematics/support staff, where this exists. Participation of BTEC students in partner FE colleges. Resources: design of bespoke support materials for FE colleges by Project Director, a specialist in research in writing/teaching writing. Staff time/materials to collect and analyse data.	Design bespoke support materials: PPTs with audio and suggested teaching activities Liaise with FE college leads to identify which BTEC tutors and subjects will participate Share materials with FE tutors Collect and analyse evaluation	FE BTEC tutors in partner colleges. BTEC students in partner colleges Where applicable, peer mentors/peer-assisted learning leaders.	Results from data analysis demonstrate improvement in academic writing skills to assist preparation for university.	Students develop understanding of academic writing requirements of HE, assisting both their readiness for HE and aligning expectations. FE teachers gain insight into the academic writing requirements of HE and begin to develop relevant aspects of this into other assignments.	**Project impact:** Reduced differential in student outcomes at degree award **Intervention impact:** Improved grade results in year 1, reducing differentials in outcomes for different groups of students and improving retention for BTEC students. Improved skills in academic writing Academic skills more embedded into FE curriculum

					delivery and staff development where appropriate and are part of the suit assessment vehicles.

ASSUMPTIONS	EXTERNAL FACTORS
Our theory/beliefs about why this will work	*Other social, cultural, economic factors which might influence the success of the intervention*
• The worry at university about academic writing is, in part, at least a consequence of not knowing what is required, rather than a skills deficit; • Some aspects of academic writing are easy to address; • FE tutors themselves may be unfamiliar with academic writing expectations; • Supporting FE tutors to embed some attention to academic writing into their routine teaching might address these issues.	• Student concerns about academic writing might be less about writing, and more about the academic content, which this intervention does not address; • FE tutors may not feel that it is their role to address academic writing on a BTEC course; • Embedding new skills into a teaching routine takes time, practice and feedback, and the intervention is in very short time frame.

Provide or increase academic writing support in FE → Increased explicit input in academic writing during BTEC course → Students develop greater confidence with and skills in academic writing → FE tutors increase understanding of HE expectations of academic writing → BTEC students better prepared for academic writing in Year 1 of university → Increased success rate of BTEC students at university