

Pathways to Personal Support

A Collaborative Model for Tailored Guidance for STEM Students across the Scottish Tertiary System

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STEP

Scotland's Tertiary
Enhancement Programme

Pathways to Personal Support

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Executive Summary

This project addressed the priority of delivering tailored, targeted and personalised support by examining a persistent challenge in tertiary education: students may be surrounded by support services but still be uncertain about where to start, which service is appropriate, how services connect, and what happens after referral. The project focused specifically on STEM subjects, where laboratory and practical work, mathematics, programming, specialist software, group projects, placements and clustered assessment can create distinctive and overlapping support needs.

The project used a multi-source enhancement approach combining current practice mapping across 29 Scottish tertiary institutions, qualitative engagement, co-design, technical analysis, student review and stakeholder validation. For analytical transparency, the detailed theme frequency and co-occurrence statistics reported in this document are derived from the coded subset used in the technical analysis: eight interview transcripts, nine co-design records and six model review records. The institutional review covered 15 universities and 14 colleges.

The central finding is that the principal challenge is not simply the availability of support, but the visibility, navigation, coordination and continuity of that support. A central or named entry route was visible in 26 of 29 institutions, yet a fragmentation or visibility limitation was identified in 22 of 29 under the project coding rules. Specialist technical/laboratory support was explicitly visible in 18 of 29 institutions and mathematics/statistics support in 12 of 29.

Evidence from students showed that support needs overlap. Academic learning difficulties frequently co-occurred with workload, wellbeing, financial or technical pressures. Co-design therefore shifted the project from a service-list model towards a coordinated pathway. The resulting STEP STEM Personalised Support Model uses seven stages: notice and identify early; start the conversation; plan together; warm referral and introduction; get the right support; follow-up and check-in; and review, close or escalate.

Final-stage dissemination provided an additional layer of stakeholder validation: 22 staff and students gave feedback on the model and its proposed implementation. Their comments reinforced the need for a clear digital entry point, fewer fragmented links, visible staff availability, confidentiality, culturally inclusive design, discreet access options, and a streamlined app/web approach that does not create unnecessary additional systems.

Student review strongly supported the developing model while generating material refinements. Mean ratings were 4.4/5 for pathway clarity, 4.4/5 for reflecting STEM needs, 4.4/5 for making

support easier to navigate, 4.8/5 for usefulness at the student's institution and 4.8/5 for recommending progression to formal pilot testing. Student feedback led directly to simpler language, clearer technical/laboratory visibility, peer and group-project support, flexible access, stronger referral accountability and VLE/portal integration.

Steering group and professional service review complemented student validation by testing operational feasibility. It reinforced role boundaries, referral ownership, consent-based information sharing, workload realism, escalation arrangements and the principle that STEP should coordinate existing services rather than create another layer of provision.

The project closes with five integrated headline output groups: (1) the final STEP STEM Personalised Support Model and framework; (2) the Student Support Navigation Map; (3) the Staff Referral and Early Intervention Guide; (4) the Implementation and Design Pack, incorporating case studies and sector recommendations; and (5) the evidence and dissemination package, including current-practice mapping, technical analysis, heatmaps/figures, the final report, three conference presentations and one journal paper in preparation.

The principal variance from the original plan is that a live multi-institutional operational pilot was not completed within the funded period because of timing associated with partner access. Structured student review and formative validation were completed instead. Accordingly, the project demonstrates design quality, relevance, usability and readiness for pilot testing; it does not claim demonstrated effects on retention, progression, engagement, wellbeing or service uptake.

1. Project Context and Rationale

STEP provides a national enhancement context for collaborative tertiary work in Scotland. This project was developed within the priority area *Delivering Tailored, Targeted and Personalised Support*. Its rationale was that support provision is often extensive but organisationally dispersed. Students may encounter central student services, school level academic support, personal tutoring, technical teams, wellbeing services, disability and inclusion services, careers, finance, peer networks and program specific provision as separate systems.

For STEM learners, the support journey is especially complex because a presenting issue may be technical, academic and personal at the same time. A student struggling with a laboratory task may subsequently miss an assessment, lose confidence and disengage. A programming difficulty may be compounded by workload, employment or wellbeing pressures. The project therefore treated the student journey, not the institutional organizational chart, as the primary design frame.

2. Aim, Objectives and Intended Contribution

Aim

To design, test and refine a coordinated model for delivering tailored, targeted and personalised support for STEM students that can be adopted across the Scottish tertiary sector.

Objectives

- Investigate current practice across partner institutions and the wider Scottish tertiary sector to identify common gaps, pressure points and examples of effective support.
- Co-create a support pathway with students that identifies intervention points, routes into support, referral responsibilities and follow-up expectations.
- Develop practical tools for students and staff, including navigation maps, case studies, referral prompts and implementation guidance.
- Evaluate the developing initiative in relation to clarity, confidence, engagement and practical usefulness, and produce recommendations for sector-wide use.

3. Partnership, Governance and Delivery

Robert Gordon University (RGU) acted as the lead institution, with responsibility for project coordination, research governance, reporting and production of formal outputs. The University of Aberdeen contributed a university sector and student partnership perspective. Scotland's Rural College (SRUC) supported collaboration arrangements. A steering and advisory structure provided academic and professional service input, while students and academic staff contributed through interviews, co-design and model review.

Ethics and data governance materials included participant information and consent procedures, separate interview and focus group schedules, a data collection protocol, risk assessment, distress and safeguarding protocols, and gatekeeper arrangements. Research activity was designed and identifiable data was managed under RGU-led governance and anonymization procedures.

4. Methodology and Evidence Base

Evidence stream	Scope and purpose
Current practice mapping	29 Scottish institutions (15 universities; 14 colleges). Reviewed visible academic, wellbeing, inclusion, technical, programme-level and STEM-specific support.
Coded interview analysis	Eight interview transcripts in the integrated technical dataset; explored learner journeys, support use, barriers, navigation and STEM pressure points.
Co-design analysis	Nine coded co-design records used to translate lived experience into pathway requirements, referral logic and implementation principles.
Model review/validation	Five coded model review records; students reviewed clarity, relevance, accessibility, usefulness and pilot readiness.
Stakeholder validation	Steering-group/academic/professional service perspective on feasibility, role boundaries, referral ownership, governance, workload and local implementation.
Technical analysis	Framework coding across 16 themes, theme salience, co-occurrence, triangulation, institutional visibility markers, descriptive validation statistics and evidence-to-model traceability.

Participant speaking turns were the unit for structured qualitative analysis, with facilitator/co-researcher turns excluded. The coded technical dataset comprised 298 interview participant turns, 143 co-design turns and 168 model review turns. These counts are indicators of salience within the analysed material and are not population prevalence estimates.

5. Current-Practice Review: 29 Institutions

Visibility marker	Institutions	Percentage
Central/named entry route visible	26/29	89.7%
Mathematics/statistics support explicit	12/29	41.4%
Specialist technical/laboratory support explicit	18/29	62.1%
Peer support explicit	7/29	24.1%
Early/proactive support marker explicit	5/29	17.2%
Evaluation/outcome evidence explicit	18/29	62.1%
Fragmentation/visibility limitation identified	22/29	75.9%

The mapping does not indicate that institutions lack support. Rather, it shows that support is frequently distributed across central hubs, schools, programme pages, handbooks and digital systems. Specialist STEM provision may exist locally without being presented as part of a coherent support journey. This distinction between service existence and service visibility became a core design principle.

6. Qualitative Findings

6.1 Most salient interview themes

Theme	Participants in coded interview subset	Coded turns
Academic learning support	8/8	45
Workload/time pressure	8/8	44
Wellbeing/personal/financial	8/8	30
Early identification/intervention	8/8	24
Inclusion/flexible access	8/8	19
Implementation/training	7/8	34
Technical/laboratory support	6/8	30
Maths/programming/software	6/8	14
Navigation/awareness	6/8	11
Transition/belonging	5/8	17
Placement/career/project	5/8	13
Referral/follow-up	4/8	6

6.2 Overlapping needs and co-occurrence

Co-occurring themes	Participant turns
Academic learning support + workload/time pressure	18
Academic learning support + wellbeing/personal/financial	17
Technical/laboratory support + workload/time pressure	17
Academic learning support + technical/laboratory support	16
Wellbeing/personal/financial + implementation/training	16
Implementation/training + workload/time pressure	15
Academic learning support + early identification	13
Wellbeing/personal/financial + workload/time pressure	13
Inclusion/flexible access + implementation/training	13

These combinations show why a single-service response is often insufficient. The model therefore includes a clarification and planning stage before referral and allows coordinated responses across academic, technical and professional services.

7. Co-design and Development of the Initial Model

The co-design stage converted the evidence into an initial pathway before student review. The initial model was evidence-informed rather than assumed to be final. It established the core logic of early identification, supportive first contact, triage/planning, warm referral, specialist support, follow-up and review/escalation.

Core design requirements emerging before student review included:

- An obvious first point of contact that does not require students to understand institutional structures.
- A support map or hub organised around the student's problem rather than the formal name of a service.
- Early supportive check-ins before a difficulty becomes a crisis.
- Warm referral rather than simple signposting.
- Named follow-up so students do not become lost between services.
- Visible STEM-specific routes for laboratories, technical equipment, programming, mathematics, specialist software, projects and placements.
- Flexible and inclusive access.
- Clearer coordination between academic, technical and professional support services.

8. Student Review, Validation and Refinement

Validation item	n	Mean	Agree/strongly agree
Pathway clear and easy to understand	5	4.40	100%
Identify where to go for support	5	4.20	100%
Referral process easy to understand	5	4.20	100%
Model reflects STEM support needs	5	4.40	100%
Student-facing resources easy to understand	5	4.40	80%
Early-intervention approach appropriate	4	4.25	100%
Model could make support easier to navigate	5	4.40	100%
Useful if available at institution	5	4.80	100%
Recommend progression to formal pilot	5	4.80	100%

Student feedback and resulting refinements

Student feedback	Refinement incorporated
Simpler student-facing language	Student route organised around 'Start here', 'Who can help me?' and 'What happens next?'
Greater technical/laboratory visibility	Laboratory, specialist software, programming, circuits, test benches and troubleshooting made more explicit.
Peer and group-project support	Peer and group-project guidance recognised as legitimate support routes.
Student choice	Choice in timing and mode, including online, in-person, email, drop-in and scheduled support where feasible.
Accountable referral	Named follow-up and, where systems allow, a referral number, ticket or status mechanism.
VLE/portal integration	Resources placed where students already work, with repeated communication at key pressure points.
Careful early intervention	Indicators treated as prompts for supportive conversation rather than assumptions or diagnosis.
Continued student involvement	Formal pilot and continued student feedback recommended before wider adoption.

9. Steering Group and Professional Service Input

Steering group review added an implementation lens. Academic and professional service perspectives broadly supported the model while emphasising that implementation must be feasible within real institutional processes.

Area	Stakeholder input	Final response
Entry to support	Retain several routes; students will approach trusted lecturers and staff as well as central hubs.	Multiple entry routes retained alongside the central Support Hub/Map.
Early identification	Attendance or missed assessment can prompt contact but should not be treated as proof of a problem.	Indicators framed as supportive prompts, not diagnosis or sanction.
Academic staff role	Lecturers can recognise need and initiate support without becoming specialist advisers.	Role boundaries strengthened.
STEM technical support	Laboratory, software, mathematics and programming needs require explicit visibility.	Specialist STEM routes remain prominent.
Warm referral	Simple signposting can lead to disengagement.	Warm handover and named follow-up retained.
Information sharing	Joined-up support must respect consent, confidentiality and data protection.	Consent-based information sharing made explicit.
Workload	The model should connect existing services, not create another administrative layer.	STEP positioned as a coordination framework.
Escalation	Routine and urgent/specialist cases require clear local routes.	Local escalation and governance mapping required.
Transferability	The common pathway is transferable if local terminology and contacts can be adapted.	Common core/local adaptation principle retained.

9.1 Dissemination Event Feedback: 22 Participants

At the dissemination event, 22 staff and student representatives provided feedback on the STEP model, the student-facing resources and the proposed digital/app-based route for accessing support. This substantially broadened the final stage feedback base beyond the earlier structured model review subset. The dissemination feedback was qualitative and should therefore be reported as stakeholder feedback rather than converted retrospectively into Likert-scale validation scores.

The feedback strongly reinforced the need for a simple and immediately visible route to support. Participants highlighted the difficulty students can experience when required to search across multiple links and platforms and supported a streamlined digital route in which support categories and direct links are easy to locate. They also emphasised that implementation should avoid unnecessary duplication of apps or systems and should, where feasible, integrate with platforms students already use.

Participants proposed several practical features for a future digital implementation: clear links to key resources; the ability to identify and select appropriate or preferred staff; visible staff availability; mechanisms for staff to update availability; persistent but secure login; optional biometric access where institutionally appropriate; and web-based access so that students are not excluded if they do not use a smartphone. Feedback also stressed the importance of keeping the platform focused and streamlined rather than overloading it with functions.

The event also sharpened the model's inclusion and confidentiality requirements. Participants noted that cultural background, stigma and fear of judgement can affect willingness to disclose academic, emotional or mental health difficulties. The proposed digital route should therefore use culturally sensitive and non-judgemental language, protect confidentiality, and consider discreet or anonymous access to information where appropriate. Participants further emphasised the importance of warm referral, continuity of contact, clear follow-up and workload-aware allocation of staff so that the pathway remains both supportive and operationally feasible.

Specific amendments arising from the dissemination feedback included removing 'Personal tutor' from the 'Who can help?' wording, correcting and completing student-facing text, strengthening the wording on secure and confidential information sharing and continuous improvement, and improving the visual alignment and presentation of the enabling-infrastructure sections.

10. Final STEP STEM Personalised Support Framework

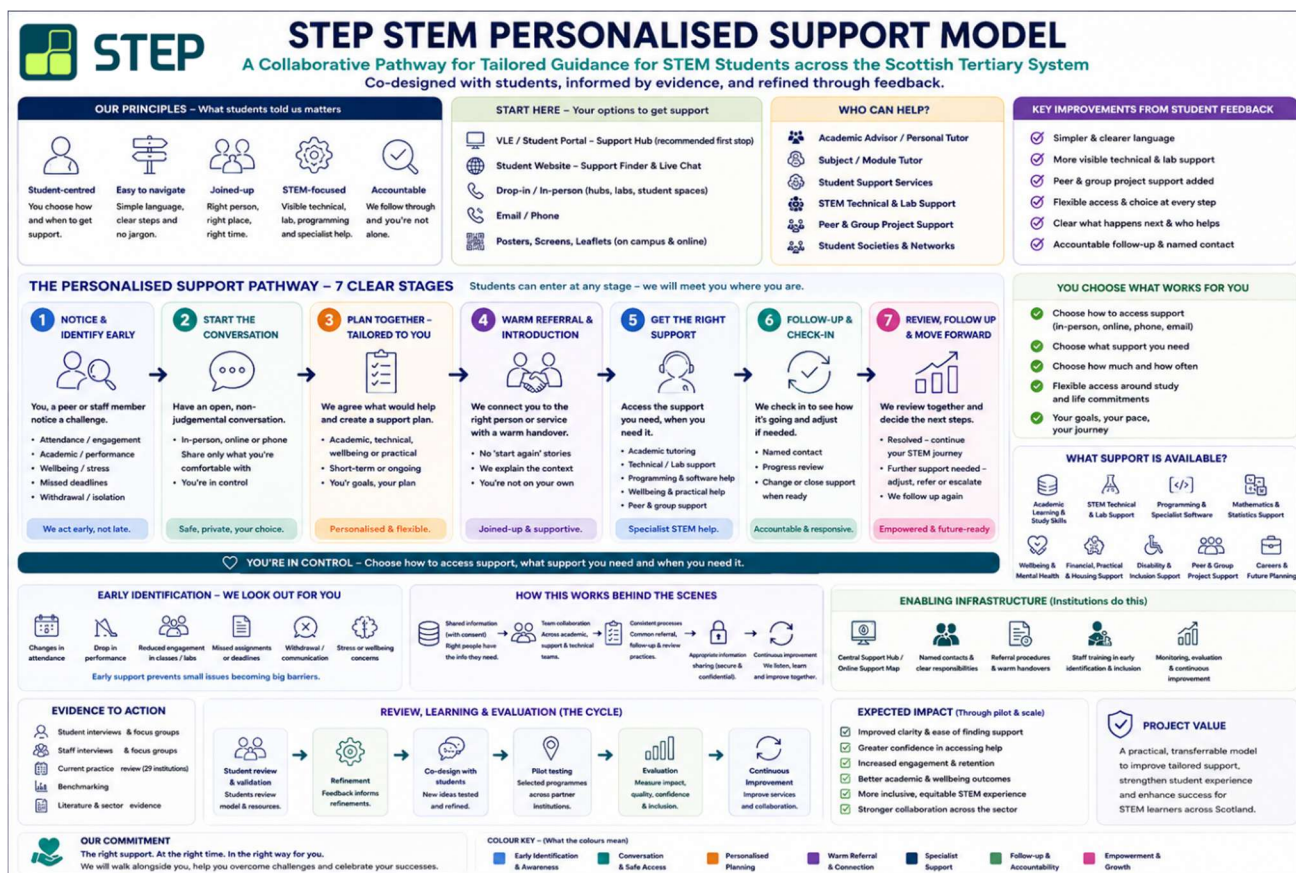


Figure 1: Final STEP STEM Personalised Support Model/framework incorporating student-review refinements.

Stage	Operational meaning
1. Notice and identify early	Self-referral, peer observation or supportive staff check-in; early indicators trigger conversation, not diagnosis.
2. Start the conversation	A safe, non-judgemental first contact through a hub, portal/VLE, tutor, programme team, academic/technical staff, professional services or peer route.
3. Plan together	Clarify the situation, urgency, mix of needs and preferred access route; agree immediate and longer-term actions.

4. Warm referral and introduction	Connect the student directly to the right person/service, explain what happens next and minimise repeated retelling.
5. Get the right support	Provide academic, technical/lab, maths/programming, digital/software, wellbeing, inclusion, financial, careers, placement, peer or other specialist support.
6. Follow-up and check-in	Confirm whether the student reached the service, received appropriate support and needs further action.
7. Review, close or escalate	Close when resolved; if unresolved or complex, coordinate additional support, redirect or escalate and follow up again.

Principles surrounding the pathway

- Student-centred and easy to navigate
- Timely and proactive
- Personalised, inclusive and flexible
- STEM-specific
- Joined-up across services
- Accountable through warm referral and follow-up
- Human plus digital
- Common core with local adaptation

11. Five Headline Final Output Groups

Headline output	Status	What it contains / purpose
1. STEP STEM Personalised Support Model and Framework	Completed	Final student-reviewed seven-stage model, learner-journey framing, early-identification, STEM-specific support, enabling infrastructure and continuous-improvement logic.
2. Student Support Navigation Map	Completed	Simplified student-facing route built around 'Start here / Who can help / What happens next?' and covering academic, technical, maths/programming, wellbeing, inclusion, finance and careers.
3. Staff Referral and Early Intervention Guide	Completed	Supportive check-in prompts, role boundaries, warm-referral principles, named follow-up, escalation and STEM-specific routes.
4. Implementation and Design Pack	Completed	Implementation principles, support matrix, referral framework, composite case studies, sector recommendations, local-adaptation guidance and evaluation position.
5. Evidence and Dissemination Package	Completed / publication in preparation	29-institution mapping, technical analysis/workbook, heatmaps/figures, final project report, dissemination deck/poster, two conference outputs and one journal paper in preparation.

12. Delivery Against Proposal and Gantt

Original commitment	Status	End-of-project position
Review current practice and map support routes	Delivered	Expanded to 29 institutions, creating a wider sector evidence base.
Explore student experience through interviews/focus groups	Delivered	Engagement completed, including feedback from 22 people at the dissemination event. This event feedback complemented the earlier interview, co-design and model-review evidence.
Co-create support pathway with students	Delivered	Evidence and co-design informed the initial model and pathway requirements.
Develop practical student/staff tools	Delivered	Navigation map, staff guide, implementation pack, case studies and referral/early-intervention resources produced.
Pilot selected programmes	Adapted	Live operational pilot not completed; structured student review and formative validation completed instead.
Evaluate clarity, confidence and engagement	Partially delivered	Clarity, relevance, accessibility, perceived usefulness and pilot readiness evaluated; behavioural impact remains for future pilot.
Refine model following feedback	Delivered	Student and stakeholder feedback changed language, STEM visibility, peer support, flexibility, digital integration, referral ownership and follow-up.
Dissemination pack/event	Delivered	Final visual materials, dissemination presentation and end-of-project reporting completed.
Case studies and sector recommendations	Delivered	Completed and aligned with evidence and student feedback.
Scholarly outputs	Delivered / in preparation	Two conference presentations (one completed) plus one journal paper in preparation.

Overall, the project delivered the central research, co-design, model development, resource development and dissemination objectives. The principal variance is the absence of the planned live operational pilot and associated outcome evaluation.

13. Sector Recommendations

- Create one clear student-facing route into support, supported by a central hub, support map or visible first contact.
- Use simple, problem-based language so students do not need to understand institutional structures before seeking help.
- Make STEM-specific routes clearly visible, including laboratories, specialist software, programming, mathematics/statistics, projects and placements.
- Use warm referrals with named follow-up to reduce repeated searching and repeated disclosure.
- Where systems permit, provide referral status information through a named contact, ticket, reference number or tracker.
- Build supportive early identification into programme practice, using indicators as prompts for conversation rather than assumptions.
- Provide flexible and inclusive access through appropriate combinations of online, in-person, email, drop-in and scheduled support.
- Build peer support and group-project guidance into the support ecosystem.
- Strengthen coordination between academic, technical and professional services and clarify ownership of follow-up.
- Integrate the student-facing map into VLE/student portals, induction and programme communications, with reminders at key pressure points.
- Use a common core with local adaptation and continue involving students in implementation, evaluation and refinement.

14. Implementation and Transferability

The framework is designed to be transferable because it standardises behaviours rather than organisational charts. Institutions do not need identical service names or structures. Each institution can map local services onto the same expectations for entry, clarification, referral, support delivery, follow-up and review.

Implementation step	Action
1. Local mapping	Map existing academic, technical and professional services to the seven-stage pathway.
2. Student-facing translation	Create a local 'Start here / Who can help / What happens next' page or visual.
3. Specialist STEM visibility	Link programme- and school-level technical support into the common map.
4. Referral ownership	Agree what constitutes a warm handover, who owns follow-up and how unresolved cases are escalated.
5. Staff development	Brief academic, technical and professional staff on early-identification prompts, boundaries, referral and inclusive practice.
6. Digital integration	Embed the pathway within VLE/student portals and communicate at transition, assessment, laboratory, placement and project pressure points.
7. Evaluation	Collect baseline and follow-up evidence on clarity, confidence, referral completion, accessibility, response time and staff confidence.
8. Continuous improvement	Review student/staff feedback and adapt local implementation while retaining core principles.

15. Dissemination, Scholarly Outputs and Sustainability

The project dissemination strategy combines institutional, sector and scholarly routes. A dedicated dissemination event at RGU brought together project partners, steering/advisory members, academic staff, professional service colleagues and other stakeholders. The project has generated two conference outputs and one journal manuscript. One conference presentation has been completed, with one planned to be presented at the Advance HE Educational Excellence Symposium 2026 subject to acceptance.

In addition, a journal manuscript, provisionally titled '*From Fragmented Support to a Clear Pathway: Co-Designing and Student-Validating a Personalised Support Model for STEM Students across Scottish Tertiary Education*,' is currently being prepared for submission to the *Journal of Further and Higher Education*. These outputs extend the reach of the work beyond the funded period and provide routes for peer review, sector discussion and future collaboration.

Sustainability is supported by separating the common model from local implementation details. The model, navigation map, staff guide, case studies and recommendations can be adapted without repeating the entire research process. Local contact details and service names can change while the core behaviours; clear entry, clarification, warm referral, appropriate support, named follow-up and review remain stable.

16. Limitations and Project Learning

- The planned live multi-institutional pilot was not completed. Student review and validation must not be described as evidence of implemented impact.
- The qualitative analytical subset is small and purposive; theme counts describe the project dataset rather than population prevalence.
- The model review session was structured around the proposed model, so frequency in that phase reflects endorsement and refinement as well as spontaneous emergence.
- Changes in college-partner arrangements demonstrate the need for contingency in multi-institutional ethics and recruitment timelines.

Key learning

- Separate the simple student-facing route from the more detailed staff/institutional framework.
- Treat technical and laboratory support as an explicit part of the student support ecosystem.
- Build referral ownership and follow-up into the pathway from the outset.
- Combine student experience with staff and professional-service feasibility review before dissemination.

17. Future Work

- Develop the STEP STEM Support App (or equivalent web-based platform) as the principal next-stage implementation of the validated model, providing one clear digital route into tailored STEM support.
- Undertake a formal multi-institutional pilot across selected college and university STEM programmes.

- Evaluate baseline and follow-up changes in clarity, confidence in help-seeking, engagement with support, accessibility and inclusion.
- Where feasible, collect operational measures including referral completion, time to appropriate support, repeat referral, service uptake and unresolved cases.
- Test the model at multiple points in the learner journey: transition, first year, continuing study, placement, final project and progression.
- Embed and test the Navigation Map and Staff Referral Guide in VLE/student portals, induction and programme communications.
- Continue student partnership in refinement and periodic review.
- Use the two conference outputs and journal paper to build a wider community of practice and support subsequent implementation research.

18. Proposed Digital Legacy: STEP STEM Support App

Feedback from the dissemination event materially extended the project's future direction. The next phase should translate the validated personalised-support framework into a digital application or web-based platform. This would move the project from a validated support pathway and implementation toolkit towards an operational, student-facing mechanism for accessing and navigating support.

The proposed STEP STEM Support App should not be treated as a replacement for human support. Its purpose would be to provide a simple front door to the existing support ecosystem, reduce fragmented searching, connect students to appropriate people and services, support warm referral and continuity, and make STEM-specific support more visible.

Priority functionality identified through dissemination feedback includes:

- A clear 'Start here' entry point organised around the support need rather than institutional structures.
- Direct access to academic learning, laboratory/technical, mathematics/statistics, programming/software, wellbeing, inclusion, financial/practical, peer/group-project and careers/placement support.
- A clear 'Links' area giving direct access to essential institutional resources without requiring students to search across multiple pages.
- Named or selectable trained staff within relevant support categories, with visible availability or absence information where institutionally appropriate.
- Warm-referral functionality and continuity so that students understand who is handling their request and what happens next.
- Follow-up/check-in functionality proportionate to the type and seriousness of the support request.
- Secure authentication and appropriate confidentiality, consent and data-protection controls.

- Discreet or anonymous information-access options where appropriate, recognising stigma and reluctance to disclose some support needs.
- Culturally sensitive and inclusive language and design.
- A web-accessible equivalent or responsive web-app option so access is not dependent solely on ownership or use of a smartphone.
- A streamlined design that avoids unnecessary duplication of existing institutional apps and systems.
- A common STEP core that universities and colleges can customise with their own service names, contacts, referral rules and local escalation arrangements.

Recommended development pathway

1. Co-design a minimum viable product specification with students, academic/technical staff, professional services and institutional digital/IT teams.
2. Develop a prototype STEP STEM Support App/web app around the seven-stage personalised-support pathway.
3. Conduct usability, accessibility, privacy, security and cultural-inclusion testing before live implementation.
4. Pilot the application in selected STEM programmes at RGU and, subject to partner readiness, at another university and a college setting.
5. Evaluate navigation clarity, time to appropriate support, referral completion, student confidence, accessibility, staff workload and user satisfaction.
6. Refine the platform and produce a scalable common-core/local-adaptation specification for wider Scottish tertiary adoption.
7. This digital development direction emerged from the end-of-project dissemination feedback and should therefore be presented as a key project legacy and future development recommendation, rather than as an outcome already implemented or evaluated during the funded project.

19. Conclusion

The STEP project has produced a coherent, evidence-informed, co-designed and student-reviewed framework for personalised STEM student support across Scotland's tertiary sector. Its main contribution is a shift from asking whether services exist to asking whether students can find, reach and remain connected to the right support when they need it.

The final model provides a clear seven-stage pathway while preserving multiple entry routes, student choice, STEM-specific support, early supportive contact, warm referral, named follow-up and local institutional flexibility. Student review strengthened clarity and usability, while steering-group and professional-service input strengthened feasibility, role clarity and governance.

The project therefore closes with a practical and transferable package ready for the next phase: translation of the validated STEP STEM Personalised Support Model into a digital

application or web-based platform, followed by formal multi-institutional pilot testing. The proposed STEP STEM Support App would provide a single, clear digital entry point to academic, technical, wellbeing and other support while retaining the seven-stage pathway, warm-referral principles, student choice and institutional adaptability.

Appendix A. End-of-Project Deliverables Register

Deliverable	Final status
Final STEP STEM Personalised Support Model / Framework	Final
Student Support Navigation Map	Final
Staff Referral and Early Intervention Guide	Final
Sector Recommendations	Final
Current-Practice Mapping	Final
Supporting Heatmaps / Figures	Final
QAA End-of-Project Report	Final
Conference Output (2)	Produced
Journal Paper (1)	In preparation
Formal live pilot	Future work

Appendix B. Technical Analysis Summary

Technical analysis subset: eight coded interview transcripts, nine coded co-design records and five model-review records. Speaking-turn totals were 298 for interviews, 143 for co-design and 168 for model review. The strongest interview themes were academic learning support, workload/time pressure, wellbeing/personal/financial issues, early identification/intervention and inclusion/flexible access. The strongest co-occurrence was academic learning support with workload/time pressure (18 turns).

Current practice summary: 26/29 institutions had an explicit central or named entry route; 18/29 had explicit specialist technical/laboratory support; 12/29 had explicit mathematics/statistics support; and 22/29 had a fragmentation/visibility limitation marker under the project coding rules. Student validation ratings for usefulness at the student's institution and recommendation to progress to formal pilot both averaged 4.8/5.

Appendix C. Evidence-to-Model Traceability

Evidence/problem	Model response
Fragmented navigation / uncertainty where to start	Clear first contact and simplified 'Start here' route.
Academic, technical and personal problems overlap	Clarify/plan stage and coordinated multi-service support.
Distinctive technical/practical STEM needs	Explicit laboratory, technical, programming, mathematics and software routes.
Referral can leave students to self-navigate	Warm referral, named follow-up and status tracking where feasible.
Learner circumstances vary	Choice of mode/timing, accessibility and tailored support.
Need for earlier support	Supportive check-in prompts, not automatic diagnosis or sanction.
Peer/group-project needs	Peer and group-project support added.
Support must be visible where students work	Portal/VLE integration and repeated reminders.
Operational feasibility and governance	Clear role boundaries, referral ownership, consent-based information sharing, escalation and local adaptation.