From Idea to Impact: Computing Educators' Perspectives on Mini-Grants for Educational Innovation

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Abstract. Educational innovation in computing education often emerges from educators' efforts to address locally identified teaching and learning challenges. While mini-grant programmes are increasingly used to support such initiatives, relatively little is known about how they contribute to educational innovation and longer-term educational change. This study investigates educators' experiences with a mini-grant programme for educational innovation operated by the Centre for Excellent IT Education (Excited) in Norway. The study is based on semi-structured interviews with ten grant recipients representing a diverse range of projects. The findings show that mini-grants enabled educational development activities, with participants emphasizing the importance of legitimacy, flexibility, and access to assistance in addition to financial support. Most innovations were sustained beyond the funding period, while evidence of institutionalization was more limited. The study suggests that mini-grants function as organizational mechanisms that support bottom-up educational innovation and experimentation. However, broader organizational impact depends on dissemination, mentoring, networking, and communities of practice that help innovations spread and become embedded in organizational practice.

Keywords: Computing Education, Educational Innovation, Educational Change, Mini-Grants, Sustainability, Institutionalization

1 Introduction

Within computing education, instructors continuously redesign courses, experiment with new pedagogical approaches, and introduce new technologies and learning activities to improve student engagement and learning outcomes [1, 6, 8, 9, 10]. At the same time, implementing educational change remains challenging. Research in computing education suggests that educational innovations are frequently initiated by educators seeking to address locally identified teaching and learning challenges rather than by centrally imposed reforms [1, 9, 10]. While considerable attention has been devoted to understanding the adoption of innovative teaching practices, increasing emphasis has also been placed on how innovations spread beyond their original context and contribute to broader educational change [8, 16]. One increasingly common mechanism for supporting educational innovation is the use of educational mini-grants. These

programmes provide modest financial support for the development, implementation, and evaluation of educational initiatives. Compared with large externally funded projects, mini-grants are typically characterized by low administrative overhead, broad accessibility, and support for locally initiated experimentation. From an organizational perspective, mini-grants can be viewed as mechanisms that support exploratory activities and bottom-up innovation, recognizing that successful innovation requires not only effective ideas but also resources, incentives, and organizational support [7]. Relatively little is known about how educators experience these initiatives or how such programs contribute to educational change.

To address this gap, we study the mini-grant programme operated by the Centre for Excellent IT Education (Excited), https://www.ntnu.edu/excited/mini-projects. This study examines recipients' experiences of the mini-grant scheme and explores how funded projects contribute to educational innovation, dissemination, sustainability, and institutionalization. The study is guided by the following research questions: (RQ1): What kinds of educational innovations have been supported through the mini-grant program? (RQ2): What motivates educators to undertake these projects? (RQ3): How do educators experience the role of mini-grants in supporting educational innovation? (RQ4): To what extent do mini-grant-supported innovations contribute to dissemination, sustainability, and institutionalization of educational change?

The remainder of the paper is organized as follows. Section 2 grounds the work in current knowledge and presents the theoretical framework. Section 3 describes the research design and methods. Section 4 presents the findings. Section 5 discusses the findings and presents implications for institutions seeking to support educational innovation through small-scale funding mechanisms. Section 6 concludes the paper.

2 Theoretical Framework

2.1 Educational Innovation in Computing Education

Educational innovation is a central concern in computing education, where educators continuously adapt curricula, pedagogical approaches, and learning activities in response to evolving technologies, student needs, and disciplinary developments [1, 6, 9, 10]. Research suggests that innovations are often initiated by educators seeking to address local challenges rather than by institutional mandates [1, 9, 10]. Faculty members are more likely to adopt new practices when they perceive them as relevant to their context, compatible with existing teaching practices, and likely to benefit student learning [1, 6, 10]. Furthermore, adoption decisions may be influenced not only by evidence of effectiveness but also by educators' interest in new approaches [6].

At the same time, adoption does not guarantee broader impact. Computing education researchers have increasingly highlighted the challenges associated with dissemination, propagation, and continued use of educational innovations [8, 9, 16]. Successful innovators frequently invest substantial effort in communication, adaptation, and support for potential adopters [8]. Educational innovation should therefore be understood as an ongoing process involving implementation, adaptation, and interaction within a broader educational community rather than as the introduction of a single intervention.

2.2 Mini-Grants as Organizational Mechanisms for Innovation

Research on organizational change suggests that innovation requires more than good ideas. Educational change is influenced by resources, incentives, institutional support, and opportunities for professional learning [7]. Within higher education, educators often face competing demands related to teaching, research, and administration, limiting their capacity to experiment with new approaches.

March's distinction between exploration and exploitation provides a useful lens for understanding educational innovation [12]. While exploitation focuses on refining existing practices, exploration involves experimentation, risk-taking, and learning under conditions of uncertainty. Educational innovation frequently requires exploratory activities, but these activities can be difficult to prioritize within routine academic work. This perspective aligns with Mintzberg's view that innovation often emerges through local experimentation and learning rather than through top-down planning [13].

2.3 Diffusion, Communities of Practice, and Scholarly Engagement

Although local innovation is important, broader educational impact depends on innovations reaching and influencing others. Rogers' Diffusion of Innovations theory describes diffusion as a process through which innovations are communicated and adopted within a social system [15]. The spread of innovations is influenced by factors such as perceived usefulness, compatibility with existing practices, complexity, opportunities for experimentation, and visibility of results [15].

Within computing education, dissemination and propagation have been identified as critical but often neglected aspects of educational change [16]. Taylor et al. argue that innovations rarely spread automatically and frequently require deliberate propagation strategies [16]. Similarly, Hovey et al. found that educational innovators actively support adoption by others through communication, mentoring, and collaboration [8].

Communities of practice and professional networks can play an important role in supporting diffusion. Educational innovations are often shared through formal and informal interactions among educators, enabling adaptation and collective learning [11]. Such communities may therefore serve as mechanisms through which local innovations become visible, transferable, and sustainable within a broader educational community.

The outcomes of educational innovation projects might range from local improvement to broader scholarly contributions. Teaching can constitute a legitimate form of scholarly activity when educators systematically investigate and share knowledge about teaching and learning [2]. Potter and Kustra further distinguish between scholarly teaching and the Scholarship of Teaching and Learning (SoTL), emphasizing dissemination and public sharing as key characteristics of scholarly educational work [14].

2.4 Sustainability and Institutionalization

A recurring challenge in educational change is ensuring that innovations persist beyond initial implementation. Rogers notes that successful innovations may eventually become routinized and integrated into everyday practice [15]. Educational change

research likewise emphasizes that long-term impact depends not only on adoption but also on sustainability and organizational embedding.

Coburn conceptualizes the scaling of educational innovations as involving four interrelated dimensions: depth, spread, sustainability, and shift in ownership [5]. Particularly important is the distinction between sustainability and ownership. Innovations may continue because committed individuals maintain them yet remain vulnerable if those individuals leave. More lasting change occurs when responsibility for an innovation becomes distributed across a wider community or organization [5].

Sustainability refers to continued use by the originating educator or course, whereas institutionalization represents a further stage of organizational change in which innovations become embedded within structures, policies, routines, and cultures [4, 7]. At this stage, continued implementation no longer depends primarily on individual champions but becomes part of normal organizational practice. Research suggests that institutionalization is more difficult to achieve than initial implementation and often requires ongoing organizational support [4, 7].

2.5 Analytical Framework

Drawing on the literature reviewed above, this study conceptualizes mini-grants as organizational mechanisms that support a progression from locally identified educational challenges toward broader and more lasting educational change. The analytical framework consists of seven interconnected stages illustrated in Figure 1.

The framework integrates organizational perspectives on innovation [7, 12, 13], diffusion theory [15], communities of practice [10], scholarship of teaching and learning [2, 14], and research on sustainability and institutionalization [4, 5]. Mini-grants are viewed as catalysts that enable educational experimentation and inquiry, while dissemination, communities, and scholarly engagement support diffusion. *Educational challenges* provide the initial motivation for change. *Mini-grant support* creates resources, legitimacy, and opportunities for experimentation. *Educational innovations* are subsequently implemented, *evaluated, and refined*. Through *dissemination*, innovations may reach broader communities. Some innovations achieve *sustainability* through continued local use, while a smaller number become *institutionalized* and embedded within organizational structures and practices.

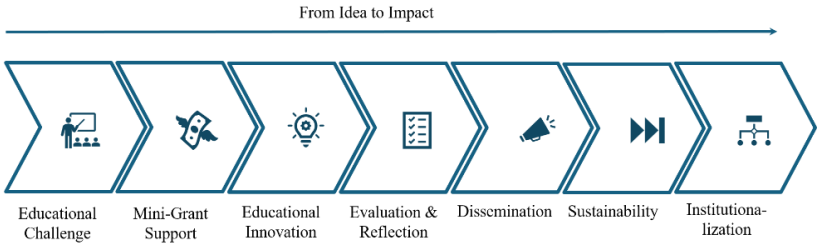


Fig. 1. Analytical framework. Mini-grants function as organizational mechanisms that might support a progression from locally identified educational challenges toward broader and more lasting educational change.

The framework serves as the analytical lens for the study and guides the interpretation of educators' experiences of educational mini-grants. The stages should not be interpreted as a strictly linear sequence. Participants frequently described iterative and recursive innovation processes.

3 Research Design

3.1 Context and Mini-Grant Programme

This study examines a mini-grant programme for educational innovation operated by Excited, with the focus on the Department of Computer Science at NTNU. The programme offered mini-grants to educators at NTNU and Nord University. Established in 2017, the programme was designed as a low-threshold funding mechanism intended to support educational development initiatives initiated by academic staff. Through annual calls, educators could apply for modest funding, up to 50-80 KNOK, to develop, implement, and evaluate innovations aimed at improving teaching and learning. Applications were assessed by a committee consisting of representatives from Excited. Criteria included educational relevance, innovativeness, feasibility, potential value for students, and plans for evaluation and dissemination. The grants were intentionally flexible and could be used for activities such as course redesign, development of educational resources, educational evaluation, dissemination activities, and support from student assistants or research assistants. The programme therefore provides a valuable context for investigating how educators experience mini-grants as mechanisms for educational innovation and educational change.

3.2 Research Approach

The study employed a qualitative research design based on semi-structured interviews. The study adopts an interpretive perspective, focusing on how participants made sense of the opportunities, challenges, and outcomes associated with their projects. Participants were selected using purposive sampling to ensure variation in project types, innovation goals, and funding periods. Table 1 provides an overview.

The interview guide was informed by the study's research questions and the analytical framework presented in Section 2. Interview topics included: motivations for applying for funding; educational challenges addressed; implementation experiences; evaluation practices; dissemination activities; scholarly outputs; sustainability of project outcomes; perceived institutional impact; and recommendations for future development of the programme. Interviews (30-60 min.) were conducted either in person or online in May-July 2026, recorded with participants' consent, and subsequently transcribed for analysis. The study was approved by Sikt (Ref. 625641). The interviews were conducted by the first author, who coordinated administrative aspects of the programme, but was not involved in evaluating proposals or funding decisions.

Table 1. Overview of interview participants and funded projects

Inter-view	Project focus	Innovation category
01	Student well-being & collaboration	Student belonging
02	Course redesign through workshop pedagogy	Active learning
03	Flipped classroom, software engineering education	Pedagogical redesign
04	Gender equality and educational innovation	Curriculum and inclusion
05	Sustainability-related educational innovation	Sustainability education
06	Wearable technology and student well-being	Student health and well-being
07	Educational development initiative	Research-based content
08	Course redesign	Gamification, workshops
09	Sustainability integration in computing education	Curriculum renewal
10	Multidisciplinary environmental analysis project	Interdisciplinary learning

3.3 Data Analysis

The data were analysed using thematic analysis following the approach proposed in [3]. The analysis combined inductive and deductive elements. First, the interview transcripts were read repeatedly to achieve familiarity with the data. Initial codes were then generated by identifying recurring topics and patterns across participants' accounts. Next, related codes were grouped into broader themes and refined through iterative comparison across interviews. In the final stage, the themes were interpreted using the analytical framework presented in Section 2. The framework served as a sensitizing lens for analysis rather than as a predetermined coding structure, allowing themes grounded in participants' experiences to be interpreted in relation to concepts such as innovation, dissemination, sustainability, and institutionalization. The first author conducted the coding, but themes and interpretations were discussed iteratively between both authors. The resulting themes form the basis for Section 4.

3.4 Trustworthiness and Limitations

Several measures were taken to enhance the trustworthiness of the study. First, participants represented a range of project types, funding periods and staff tenure, providing diverse perspectives on the mini-grant programme. Second, interview data were considered alongside programme documentation, enabling participants' reflections to be interpreted in relation to programme goals and calls for proposals. Third, a systematic analytical process involving iterative coding, theme development, and repeated engagement with the data was employed.

The study nevertheless has limitations. The findings are based on self-reported experiences from a single departmental context and do not seek statistical generalization. In addition, the study focuses on educators' perceptions of impact rather than independent measures of student learning or organizational change. Given that interview participants were grant recipients and authors’ colleagues, social desirability bias cannot be

excluded. Also, the study focuses on funded and completed projects, creating a potential survivor bias. The time between project completion and interview varied considerably. Participants may have remembered successful outcomes more readily than challenges, and their interpretations may have been influenced by subsequent experiences.

4 Findings

4.1 Motivations for Applying: Addressing Educational Challenges and Exploring New Ideas

Participants described a wide range of motivations for applying for mini-grant funding, but most projects originated in concrete educational challenges observed in local teaching contexts. Rather than emerging from strategic top-down initiatives, projects were typically initiated by educators seeking to improve specific aspects of student learning, engagement, collaboration, or course content.

Several projects were motivated directly by *students' expressed needs*. For example, one participant developed a social matching initiative after repeatedly meeting students who reported having "no acquaintances in the study program, no friends" and therefore struggling to build social connections during their studies (Interview 01). Other projects were motivated by *improving student learning* in specific courses. Participants described challenges related to student engagement in theory-heavy subjects, teamwork difficulties in project-based courses, integration of sustainability into computing curricula, software engineering education, student well-being, and multidisciplinary learning activities (Interviews 02, 03, 05, 08, 09, and 10).

The role of educational theory varied considerably across projects. Some initiatives were deeply rooted in *educational research*. One team conducted a literature review and adopted threshold concepts as an analytical lens before implementing course changes (Interview 02), while another explicitly combined constructivism, social constructivism, constructive alignment, and project-based learning principles in course redesign (Interview 03).

In contrast, several innovations emerged primarily from *practical experience, personal curiosity, or inspiration from external initiatives* rather than formal educational theory. For example, the social matching initiative was inspired by a sports club's "training buddy" concept rather than research evidence (Interview 01), while the sustainability project originated from the applicant's desire to explore the topic in teaching despite limited prior knowledge of the educational literature (Interview 09).

Across interviews, participants repeatedly described *educational improvement* as the primary motivation. Research outputs such as publications often emerged later as a consequence rather than an initial objective (Interviews 05 and 08).

4.2 Educational Innovations Supported by the Scheme

The funded projects covered a diverse range of educational innovations. Some focused on the *social learning environment*, including initiatives designed to strengthen students' social belonging, improve peer collaboration, and reduce isolation (Interview

01). Others targeted *pedagogical redesign* through flipped classroom approaches, workshops, peer feedback activities, gamification, and active learning strategies (Interviews 02, 03, and 08).

Several projects focused on *curriculum content renewal*. Examples included sustainability in software engineering and recommender systems, social sustainability, entrepreneurship, gender equality, student stress and well-being, and multidisciplinary environmental analysis projects (Interviews 04, 05, 06, 09, and 10).

The *scale of innovation varied* considerably. Some projects involved incremental improvements to existing courses, while others resulted in substantial redesigns. The clearest example was a sequence of three connected mini-grants that transformed a project-based course into a workshop-based model over a three-year period through iterative investigation and redesign (Interview 02). Similarly, another team reported that findings from successive mini-grants fundamentally reshaped how a research methods course was structured, introducing workshops, games, and new collaborative activities (Interview 08).

Participants often described the projects as *opportunities to experiment*. The innovations were rarely implemented as fixed interventions; instead, they evolved in response to student feedback, implementation challenges, and emerging findings (Interviews 02, 03, 06, 08, and 10).

4.3 The Role of Mini-Grants: Beyond Financial Support

A striking finding across interviews was that participants rarely described the mini-grants primarily as a source of funds. Instead, the funding functioned as a mechanism that created opportunities, legitimized educational innovation, reduced perceived risk, and enabled action.

Many participants emphasized that mini-grants *created capacity* by enabling them to hire student assistants or research assistants. These assistants conducted literature reviews, analysed student data, developed educational materials, implemented technical solutions, and carried out interviews (Interviews 03, 06, 07, and 08). One participant explained that without a dedicated research assistant, course development would have progressed very slowly because existing teaching resources were already being reduced (Interview 03).

Participants frequently described the mini-grants as creating a form of *commitment*. Educational improvement ideas often existed for years but did not progress because of competing priorities. Several interviewees explained that receiving funding transformed intentions into concrete action (Interviews 01, 08, and 09).

The grants also appeared to *legitimize educational development and educational research*. Several participants noted that educational inquiry exists alongside substantial pressures related to disciplinary research and publication. The existence of a dedicated funding scheme signalled that educational innovation was valued and worth investing time in (Interviews 02, 07, and 08).

A recurring strength of the scheme was its *low application threshold*. Participants contrasted mini-grants with large external funding schemes that require extensive proposal development and significant prior evidence. The relatively simple application

process encouraged experimentation with novel ideas (Interviews 03, 04, and 09). One participant highlighted that an interesting idea was often sufficient for funding consideration and that this created "a lot of room for experimentation" (Interview 09).

4.4 Experiences During Implementation

Most projects were implemented successfully, although nearly all participants reported *making adjustments* during execution. A common challenge was *recruiting participants and collecting meaningful feedback*. Several educators noted difficulties recruiting students for interviews, surveys, focus groups, or reference groups despite offering incentives (Interviews 02, 08, and 10). *Time constraints* emerged as another recurring challenge. Participants often described mini-grants as additional activities carried out alongside teaching, research, and administrative responsibilities (Interviews 03, 05, 07, and 08). Several projects encountered *technical or organizational barriers, e.g.* difficulties finding suitable learning spaces, evolving technological infrastructures, recruitment of assistants, evaluation challenges, and dependence on external stakeholders (Interviews 01, 03, 06, 08, and 10). Despite these challenges, participants generally viewed *adaptation as a natural part* of educational innovation rather than a sign of failure.

4.5 Perceived Educational Impact

Participants generally perceived their projects as beneficial for students, courses, and themselves as educators. However, they were often cautious about making strong claims regarding learning gains.

The most frequently reported *student-level impacts* were increased engagement, improved collaboration, greater participation, higher motivation, and improved opportunities for feedback and interaction (Interviews 02, 05, 08, 09, and 10). For example, one participant observed increased student engagement after introducing workshop-based learning, video lectures, peer feedback, Mentimeter activities, and Kahoot-based formative assessment (Interview 02). Another reported that students strongly preferred newly introduced game-based activities and interactive workshops (Interview 08).

Several projects appeared to improve *students' awareness of broader societal issues*, such as increased understanding of sustainability, social responsibility, well-being, interdisciplinarity, and environmental challenges (Interviews 05, 06, 09, and 10).

However, participants frequently emphasized the *difficulty of establishing causal relationships between interventions and learning outcomes*. One educator noted that although student feedback suggested positive developments, it remained difficult to determine exactly how much improvement had occurred (Interview 02).

The projects also produced substantial *benefits for educators* themselves. Participants described learning about educational theory, educational research methods, project management, proposal writing, dissemination, and teaching practice (Interviews 02, 04, and 08). Early-career researchers particularly emphasized gains in professional development and educational research experience.

4.6 Evaluation Practices: From Reflection to Scholarship

Evaluation approaches varied considerably across projects. At one end of the spectrum, projects relied primarily on course evaluations, questionnaires, informal feedback, or educator reflections (Interviews 01, 03, and 07). At the other end, several projects adopted systematic research methods, including interviews, focus groups, reflection report analysis, exploratory case studies, surveys, usability testing, and mixed-method evaluations (Interviews 02, 05, 08, and 10).

Particularly notable were projects where evaluation activities generated publishable educational research. One team conducted a sequence of studies involving literature reviews, theory-driven analyses, surveys, and interviews, which subsequently resulted in three peer-reviewed publications (Interview 02). Another team used exploratory case study methods to investigate student collaboration challenges and redesign course structures based on collected evidence (Interview 08).

4.7 Dissemination, Sustainability, and Institutionalization

The long-term impact of projects varied substantially. Several projects generated conference presentations, publications, seminars, internal dissemination events, and broader educational discussions (Interviews 02, 03, 05, 07, 08, and 10). The strongest example of *dissemination* involved the initiative promoting student well-being and friendship. Following media attention, similar initiatives were adopted by multiple NTNU units and later by other Norwegian universities (Interview 01).

Most projects demonstrated *some degree of sustainability*. Course materials, redesigned learning activities, workshops, sustainability content, and pedagogical approaches frequently remained in use after funding ended (Interviews 02, 03, 06, 07, 09, and 10). However, sustainability was not guaranteed. Several participants highlighted that innovations often depended heavily on individual project champions. In some cases, initiatives weakened or disappeared when key educators changed roles, completed their PhDs, or left the institution (Interviews 04 and 07).

Evidence of *institutionalization was more limited* but nevertheless visible. Examples included permanent departmental funding for a continuing initiative, integration of redesigned activities into routine course delivery, repeated implementation across semesters, and adoption by colleagues and other institutions (Interviews 01, 02, 03, and 10).

Overall, while most projects continued beyond the initial funding period, only a subset progressed toward broader organizational embedding and institutionalization.

4.8 Recommendations for Future Mini-Grant Schemes

Participants expressed overwhelmingly positive views of the scheme and consistently argued that similar initiatives should continue. The most frequently suggested improvements included stronger dissemination mechanisms, more structured mentoring, additional support during project execution, greater opportunities for collaboration, and follow-up funding for successful projects (Interviews 02, 04, 07, 08, 09, and 10).

Many participants also emphasized the importance of helping educators move beyond implementation toward publication, reflection, and dissemination. Several

interviewees argued that mini-grants should not only finance innovation but also strengthen the scholarship of teaching and learning through mentorship, peer learning, and support for educational research dissemination (Interviews 02, 04, and 08).

These findings suggest that participants viewed mini-grants not merely as a funding mechanism but as a developmental infrastructure supporting educational experimentation, professional learning, and evidence-informed educational change.

5 Discussion

5.1 Mini-Grants as Catalysts for Bottom-Up Educational Innovation

The findings suggest that mini-grants can function as organizational mechanisms that enable educational innovation by reducing barriers to experimentation and providing legitimacy, resources, and momentum for change. Participants consistently described their projects as responses to locally identified educational challenges rather than implementations of centrally prescribed initiatives. This observation aligns with prior computing education research showing that educational innovations are often driven by educators' attempts to address specific problems in their teaching contexts [1, 9, 10].

The findings can be interpreted through March's distinction between exploration and exploitation [12]. Many projects involved experimentation with new pedagogical approaches, learning activities, curriculum content, or technologies, all of which are characteristic of exploratory activities. Participants repeatedly indicated that the mini-grants enabled work that would otherwise have been delayed or not undertaken at all. The findings are also consistent with Mintzberg's view that innovation emerges through local experimentation and learning rather than detailed top-down planning [13]. Rather than directing specific changes, the mini-grant programme created conditions under which educational innovations could emerge and evolve.

5.2 From Innovation to Dissemination and Scholarly Engagement

A central finding is that the educational innovation triggered by mini-grants alone do not ensure broader impact. Several participants described dissemination activities such as conference presentations, workshops, publications, and exchanges with colleagues. This supports previous work emphasizing that successful educational innovations rarely spread automatically and often require active propagation efforts [8, 16].

Rogers' diffusion of innovations theory provides a useful perspective for understanding this process [15]. The mini-grants primarily supported innovation generation and implementation, while dissemination activities enabled innovations to become visible to others. Participants' accounts suggest that communication, adaptation, and peer interaction were essential for extending impact beyond individual projects.

The findings further highlight the importance of professional networks and communities of practice. Participants repeatedly called for stronger opportunities for dissemination, mentoring, networking, and peer learning. This supports Ma et al.'s argument that communities of practice play an important role in supporting educational development and knowledge sharing among computing educators [11]. The findings therefore

suggest that mini-grants are most effective when embedded within a broader community that enables educators to exchange experiences and learn from one another.

Several projects also resulted in conference presentations, publications, and systematic educational inquiry. Consistent with Boyer's conception of teaching as a scholarly activity [2] and Potter and Kustra's description of the Scholarship of Teaching and Learning (SoTL) [14], the findings indicate that mini-grants can help educators move from local educational improvement toward broader scholarly engagement.

5.3 Sustainability Is Common, Institutionalization Less So

Most participants reported that innovations continued beyond the funding period. Redesigned learning activities, educational resources, and pedagogical approaches frequently remained in use years after project completion. This finding supports previous research showing that innovations are more likely to persist when educators perceive them as valuable and compatible with their local context [9].

However, the findings also reveal an important distinction between sustainability and institutionalization. Many innovations survived because individual educators continued to champion them. In contrast, evidence of broader organizational embedding was less common. This distinction closely reflects Coburn's argument that sustainable educational change involves not only continuation and spread but also a shift in ownership beyond individual innovators [5].

Similarly, recent research on institutionalization emphasizes that long-term impact requires innovations to become embedded in organizational structures, routines, and cultures rather than remaining dependent on individual champions [4]. While a small number of projects demonstrated such characteristics, most remained primarily associated with the educators who initiated them. The findings therefore suggest that mini-grants are effective in supporting innovation and sustainability but are less effective on their own, in achieving institutionalization.

5.4 Implications for Designing and Evaluating Mini-Grant Programmes

These findings have implications for programme design. If institutions seek broader and longer-lasting impact, funding should be complemented by mechanisms that support dissemination, mentoring, networking, and community building. Such structures may help innovations move from local experimentation toward wider adoption, sustained use, and eventual organizational embedding [5, 7, 11, 15].

The findings suggest that mini-grants should be viewed not merely as funding mechanisms but as *components of a broader educational innovation ecosystem*. Participants consistently emphasized that the most valuable aspects of the scheme were not the financial resources alone, but the legitimacy, flexibility, and access to assistance that enabled them to pursue educational development projects. This supports organizational perspectives on educational change, which emphasize that innovation depends on supportive structures and resources as well as individual motivation [7].

A second implication concerns *dissemination and community building*. While many projects produced valuable innovations and several generated publications or presentations, participants repeatedly noted the need for stronger opportunities for sharing

experiences, learning from colleagues, and receiving mentoring. This finding resonates with research highlighting the importance of propagation strategies, communities of practice, and professional networks in supporting the spread of educational innovations [8, 11, 16]. Institutions seeking broader impact from mini-grant initiatives should therefore consider supporting project showcases, mentoring arrangements, peer-learning activities, and communities of practice alongside the funding itself.

The findings also have *implications for programme evaluation*. Educational innovation schemes are often assessed using short-term indicators such as the number of funded projects or scholarly outputs. However, the present study suggests that impact may take multiple forms, including educational improvements, educator development, dissemination activities, scholarly engagement, sustained teaching practices, and contributions to organizational learning. Consistent with diffusion and institutionalization perspectives [4, 5, 15], evaluation frameworks should therefore consider not only implementation outcomes but also indicators of dissemination, sustainability, ownership, and organizational embedding.

Taken together, the findings suggest that mini-grants can be effective mechanisms for stimulating educational innovation, but their long-term contribution depends on the structures that surround them. Funding initiates experimentation; dissemination, communities, and organizational support help innovations become sustained and, ultimately, institutionalized.

6 Conclusion

This study shows that mini-grants can effectively support a diverse range of educational innovations in computing education, including pedagogical redesign, curriculum renewal, sustainability education, and initiatives promoting student belonging and well-being (RQ1). The projects were primarily motivated by educators' desire to address locally identified teaching and learning challenges and improve student experiences, consistent with previous research highlighting the importance of bottom-up educational innovation (RQ2). Participants emphasized that the value of mini-grants extended beyond financial support. By providing legitimacy, flexibility, and access to assistance, the programme enabled experimentation and educational development that might otherwise not have occurred (RQ3), supporting organizational perspectives on innovation and exploration. The findings further indicate that mini-grant-supported innovations frequently contributed to dissemination and were often sustained beyond the funding period. However, evidence of institutionalization was more limited, as many initiatives remained dependent on individual champions rather than becoming embedded in organizational routines (RQ4), echoing findings on sustainability and institutionalization in educational change.

Overall, mini-grants are valuable catalysts for bottom-up educational innovation. Their longer-term contribution to educational change depends not only on funding, but also on dissemination, mentoring, and communities of practice that support diffusion, sustainability, and institutionalization of successful innovations.

Acknowledgments. This study was supported by Excited SFU, co-funded by Norwegian Directorate for Higher Education and Skills, grant ID SFU-2016/10002.

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