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Student Teacher Educational Research (STER): An Innovation in Irish Teacher Education

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This paper introduces an innovative project in teacher education, designed to enhance student teachers' engagement with educational research methods by creating in a peer-learning network. The Student Teacher Educational Research (STER) project was established by the author in partnership with a group of student volunteers in 2017. The project focused on creating new forums for student teacher research dissemination that encouraged and promoted collaboration amongst student teachers during initial teacher education. Responding to Irish Higher Education policy (2016), the project positioned student teachers as partners and co-creators in the management of STER and created a peer-learning network which enhanced the learning and engagement of all participants. STER was piloted with a cohort of student teachers in one Faculty of Education in Ireland. All participants were undertaking a research project as part of their programme of study. This research presents the findings of the evaluation of that pilot year, incorporating qualitative and quantitative data from twenty-seven students. The learning derived from participation in STER will be outlined, with a particular emphasis on how peer-learning and research dissemination can be supported in ITE. Giving student teachers an opportunity to share their research in student-led learning community motivated them to engage with educational research outside of lectures and participants gained a greater appreciation for the potential of educational research to influence practice.

Teacher Research and Teacher Education

Since the resurgence of the teacher researcher movement of the 1980s, a considerable body of research has elucidated the benefits of building teachers' research capacity. Engaging in and with

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educational research can encourage teachers to collaborate (Darling-Hammond 2006), to 'seek continual professional renewal' (Dunn, Harrison and Coombe 2008 cited in Wagas et al, 2018: 215), and to recognise and adapt to students' individual needs (Parkison 2009). The emancipatory potential of teacher research continues to be emphasised. In a review of teacher research in the UK, BERA stated that 'a research engaged teaching profession is likely to be one that is more self-confident, creative and adventurous – those qualities that it is often claimed have been stripped away from teachers' identity and practice in recent decades' (2014, p.21). Hargreaves (2003) and Sachs (2016) suggest that a more collaborative, research-engaged teaching profession made possible through continued opportunity for knowledgeable, inquiry-oriented practice.

While educational data mining (Baker and Siemens 2014), learning analytics (Long and Siemens 2011) and OECD 'big data' (TALIS, PISA) hold weight in the educational policy landscape, the involvement of teachers in generating data is beginning to be recognised in the context of reflective practice (Cosán 2016) and quality assurance frameworks, for example Looking at Our Schools (DES, 2016). Responding to international developments, the professional standards body for the teaching profession in Ireland, the Teaching Council has positioned teacher research within the remit of programmes of initial teacher education. In its accreditation guidelines, the Teaching Council state that "all ITE programmes should address…the Teacher as Professional/Reflective Practitioner/Researcher. Furthermore, "in all areas of study there should be provision for… the development of student teachers as researchers and lifelong learners" (2017, p.14). The growing demand on teachers to be research literate and the accreditation criteria set out by the Teaching Council has resulted in the introduction of new research methods and dissertation modules within programmes from early years to post-primary teacher education. Developing the teacher as 'reflective practitioner and 'researcher' has become a core facet of Irish teacher education (Teaching Council, 2017, p.14). Student teachers are now required student teachers to conduct independent research as part of their

programme of study. Although, the student experience varies from performing a literature or policy review, to collecting and analysing primary data. It is within this context that the Student Teacher Educational Research (STER) project was established.

Peer Learning

Teaching has undergone a pedagogical shift, with educators now focusing on improving student motivation through autonomy and active learning (Fernandes et al., 2012). There has been a gradual move away from traditional forms of teaching and learning, where knowledge is transmitted by the teacher and acquired by the learner, to more self-directed student-led approaches (Ashworth et al, 2004). In Ireland, student-led constructivist approaches to learning are ingrained in curricula across education sectors; from play-based early learning in Aistear (2009), to active learning in Curaclam na Bunscoile (1999), and 'being creative' on the Junior Cycle Framework (2015). Students are expected to be capable of handling knowledge, updating it, selecting what is appropriate and tailoring it to different contexts (Fernández et al., 2010, González and Wagenaar, 2003).

Supporting students through the process of creating new knowledge by critically assessing, synthesising and analysing existing knowledge is labour intensive. With higher education institutions facing significant challenges in terms of rising student numbers, falling income, reliance on precarity and increasing demands (IUA 2014), institutions are growing more interested in developing students' ability to evaluate and improve their own work and the work of others (Oliver 2011). Peer-learning has emerged as a positive method of engaging students more deeply in teaching, learning and assessment (Moore and Teather 2012; Harland et al 2017). Summarising a series of research articles on peer learning, Reid and Duke (2015) claim that peer learning has positive effects on students' achievement, can reduce the workload of teaching

staff, and generic employment skills can be promoted when students work together. For lecturers, supporting a full class group to conduct individual research projects on a wide range of topics relevant to education is challenging. Harnessing peer-learning can be an effective and alternative way to support students at different stages throughout the research process.

Peer learning can happen in formal or informal ways (Boud, Cohen and Sampson 2001). Individual students can tutor each other in a formal setting (Slavin 1990), cohorts can assess the work of peers (Harland et al 2017), and/ or students can learn informally through dialogue and everyday interaction (Reise et al 2012; Reid and Duke 2015). In this sense, peer learning 'departs from traditional approaches which emphasise the superiority of the teacher over students and instead builds on the concept that learning is more effective when knowledge is constructed and shared among peers' (Idris et al. 2018, p.4). Learning becomes embedded and integrated when social interaction is supported (Bandura 1977). However, for peer-learning to work effectively, activities must be carefully planned, giving due thought to purpose, context, population and integrity of implementation (Topping 2005). Through the establishment of a research conference and a peer-reviewed on-line journal, the STER project created both formal and informal opportunities for peer learning.

Education Context

At the time the project was established, the author was the research coordinator for a two-year Professional Master of Education Programme (Primary) with responsibility for guiding the students through the process of preparing a research thesis. The PME cohort were targeted for inclusion in the STER project specifically because they were required to conduct educational research as part of their programme of study and they had weekly contact with the author.

As part of the PME programme, students were required to conduct a research project and to submit their findings in the form of a thesis. All students enrolled on the programme held an undergraduate

degree, often in a subject unrelated to teacher education. During undergraduate study, some students had gained experience preparing a dissertation, but none had experience conducting education research. To assist them on their research journey, all students were required to attend several lecturers and tutorials in research methods per week, beginning in the second semester of their first year and continuing to the completion of their programme. In lectures, the author introduced students to teacher research as a means of developing their professional practice and contributing to their school as a learning community. A wide range of methodologies including; case study, action research, narrative, phenomenological and desk-based approaches were discussed in the context of researching teaching and learning. Students were encouraged to work independently to explore policy, curricula, empirical and/or secondary data and to construct new knowledge around a topic that motivated them. Topics of research were not predetermined by the lecturer but rather were often inspired by the professional experience, personal biography or prior educational experience of the individual student.

Following a traditionally linear approach to instruction (Badke 2015), students were required to demonstrate their research literacy by: generating their own individual research question, performing a literature review to better understand their topic, ethically and responsibly gather data and rigorously analyse that data to address their question. Students had access to academic guidance in the form of small group supervision for the duration of the project and theses were submitted in the final semester of the programme. Despite the high quality of output and the level of student engagement, theses were rarely shared with anyone other than the academic advisor, external examiner and the research co-ordinator.

Rationale for Development

STER was established in response to two persistent issues that were affecting student engagement with and enjoyment of their education research. Firstly, that the lack of dissemination of student teachers research was a lost learning opportunity for students and their peers. Without sharing their findings, student researchers do not expose their research to discussion, analysis, critique or approval from peers and practicing teachers, rendering it less 'real' and less impactful. Most fundamentally, research is about 'informing discussions and decisions regarding what constitutes good practice in education and to do that it must be a public enterprise from start to finish…it must be shared, discussed, argued, refined and re-examined' (Sears 2010, p. 250). Furthermore, the benefit of findings for teachers and school leaders, many of whom contribute generously to student teacher research each year, was lost entirely. To practice ethical research is to value the contribution and voice of participants. When data are collected and analysed and the most up-to-date findings are not available to participants, they are denied the opportunity to respond, act or learn from their contribution.

Addressing the transfer of knowledge from research to policy and practice is high on the policy agenda nationally and internationally (Eurydice 2017; Wilson et al 2010; Teaching Council 2017). Making research findings accessible to practicing teachers is a central tenant of the work of the Teaching Council Research Engagement Group. All registered teachers have been granted free access to online research webinars, e-zines, research summaries and research-meets in an attempt to foster a 'research culture' amongst the teaching profession. Students need to gain an appreciation for the purpose and value of education research during ITE, that is, to improve teaching and learning. Without an audience for their research, students are far less likely to consider the significance of their findings for others; the accessibility of their language; their long-term research goals; and the wider context in which their research can contribute. STER set out to address this concern by establishing new forums for the public dissemination of student

teacher research and to promote dissemination as a core element of research-based teacher education in Ireland.

The second concern addressed by STER centres on student engagement. The development of research skills in teacher education is a relatively new phenomenon in Ireland (Teaching Council 2012). Students without prior research experience sometimes struggle to develop research skills and to appreciate the relationship between research and practice, putting them at risk of disengaging early in the process. The skills that are acquired by conducting independent educational research are widely accepted to benefit teachers' practice throughout the continuum of their professional careers (Sahlberg and Hyland 2019; Munthe and Rogne 2015). International trends in evidence-based practice have emphasised the importance of teachers' engagement in and with research (Guuske et al 2009; Marjolein et al 2012). This has been supported nationally by Teaching Council policy on professional development (2019) and teacher education (2017). Yet, the relationship between teachers and research is not always positive. 'Complaints from teachers about the lack of relevance of educational research to instruction are legendary' (Greenwood and Abbot 2001, p. 282). Teachers have perceived research as far removed from the classroom (Tseng 2017), presenting often contradictory findings (Fleming 1988) and language that is inaccessible (Viadero 1994). For students, the practice of engaging in research can be challenging, with students sometimes struggling to appreciate the value of research to their professional roles. Designing STER as a peer-learning network was intended to draw students into dialogue with peers and practicing teachers about the methods and merits of education research. The intention was to deepen students' appreciation for taking a research approach to teaching and learning, thus increasing their engagement with research during ITE.

The STER Model of Research Dissemination

Aim 1: Creating Student Research Dissemination Forums

The first aim of the STER project was to *create new research dissemination forums for student teachers to share their research findings for the benefit of peers, teachers and the wider education community.* In its first year, the STER project established two new student-centered forums for research dissemination, namely: the STER online research journal and the STER research conference.[1] Final year PME students were invited to share the findings of their research thesis, either by writing a brief snapshot article for the journal, or by preparing a presentation, poster or symposium for the conference (see figure 1). Students were considered to be 'co-creators' in the dissemination process, responsible for their own learning but also having a valuable contribution to make to the learning of their peers (HEA, 2016).

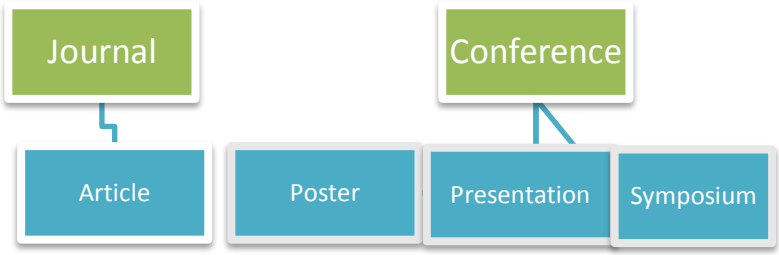

Figure 1 Student Research Dissemination Forums

[1] In 2019, STER established a podcast series, sharing student teacher research online and a Sound-Boarding session for early stage researchers to get feedback on their research design.

Students contributing to the online journal were asked to prepare a 2,500 word article concentrating on one or two key findings from their research. Articles were to be written in accessible language, where technical terms were defined within the text. The purpose of the article was to give peers and teachers a brief insight into the views of participants and a useful bibliography to pursue for further reading. Students contributing to the conference were asked to prepare a fifteen-minute presentation or academic poster outlining the aims of the research, the methodology and core findings. STER dissemination forums offered final year students a platform to share their research findings in a collegial and supportive manner before they submitted their final dissertation.

Aim 2: Create a peer-learning network

The second aim of the STER project was to *create a peer-learning network where students worked collaboratively to enhance their knowledge and engagement with educational research*. Students were encouraged to engage in meaningful learning experiences; they were involved in processes of discussing and writing rather than just listening (Bonwell and Eison 1991), the emphasis was on the research and feedback process rather than the content of projects to benefit their learning (Moore and Teather 2012); students were required to synthesis, evaluate and provide feedback, the benefits of which have been widely acknowledged for learning (Lundstrom & Baker, 2009; van den Berg et al. 2006). Peer-learning was taken to mean a reciprocal exchange of knowledge, ideas and feedback from one person to another to enhance the learning of each party. In the case of STER, knowledge was exchanged within cohort groups (e.g. amongst the year 1 cohort), and between cohort groups (e.g. between year 1 and year 2).

Year 2 students were invited to share their research, receive and respond to feedback. Year 1 students were invited to volunteer as peer-reviewers for the online journal, or as conference advisors responsible for promoting STER, running the conference and chairing sessions. To maximise the potential for peer learning,

research dialogue and feedback was encouraged both within cohorts (within year 1, and within year 2), and between cohorts (between year 1 and year 2), and through attendance at the research conference. See figure 2 for an illustrative overview of the STER peer learning structure.

Figure 2 STER peer learning structure

Aim 3: Deepening understandings of Education Research through dialogue

The final aim of the project was to *generate a 'research culture' through dialogue that would evoke an interest in, and deeper understanding of, education research during initial teacher*

education. The exchange of information between year 1 and year 2 students was aided by the peer review process and dissemination forums of STER. Year 2 students provided year 1 students with samples of practice-based, and up-to-date research. Concurrently, by reviewing online articles, and chairing conferences sessions, year 1 students provided year 2 students with feedback and raised interesting questions that stimulated reflection and discussion.

Peer-Review Process. Following a blind peer-review process, year 2 students prepared research articles and year 1 students reviewed articles. Peer reviewers were supported to work together, initially receiving articles to review individually, then meeting as a group to share their insights into elements of the article they felt worked well and/or needed improvement. As the emphasis of STER was on the co-creation of knowledge, the review group collaboratively agreed upon the final feedback sent to the author. Year 2 student authors had the opportunity to respond to feedback and resubmit a revised article for publication.

Conference Advisory Process. Year 1 student advisors met as a group with the author throughout the academic year to discuss the purpose, value and promotion of STER. Advisors took on the role of ambassadors for STER, sharing information about the project and promoting dialogue about research within their own cohort.

Attending the Conference. By attending the STER conference, students were exposed to various educational epistemological, ontological and methodological considerations in practice and they begin to co-create research knowledge through conversation. Groups of students were brought together through STER for one purpose, to share ideas 'that support community activities and help individuals to make sense of new knowledge…It is a safe environment for students to engage in learning through interaction, observation and discussion (Hurst et al 2013). In conversation with each other and with the coordinator, they adapted, reflected on and critiqued their inherent understandings of a topic, enabling greater engagement and adding to successful practice (Topping 2005).

The Role of the Coordinator. The role of the coordinator was vital in encouraging and responding to research dialogue. While communities of practice have traditionally been considered to be organic and informal meetings of learners (Wenger 1998), it has since been acknowledged that CoPs can be formally established by a leader or organisation for the purpose of expanding learning (Wenger 2002). As the founder of STER, the author took on the role 'leader of the community' with 'expertise and personal connections necessary to provide resources for the group and to recruit new members' (Wenger 2002). Support was provided for volunteers in the form of peer-review training sessions, volunteer handbooks and team meetings. Respect, trust and courtesy were promoted in all interactions.

Methodology and Methods

The data presented in the remainder of this paper was gathered from a descriptive evaluative study of the pilot year of the STER project. An online survey was designed using generic software. The survey consisted of 20 open-ended questions and 5 Likert style questions, which together, provided quantitative and qualitative data for analysis (Denzin 2010; Coe et al. 2017). The evaluation set out to explore the effectiveness of the STER model by capturing student teachers' experiences and perceptions of participation and engagement.

Structured around the three core aims of STER, the 25 question survey explored student teachers' motivations for getting involved in STER. Participants were asked to evaluate the ethos, management and peer-learning structure of STER. Students were asked to assess the impact of STER on their understanding, skill development and interest in educational research. The impact of dissemination on their learning was explored and finally, students were given the opportunity to provide recommendations for future iterations of the model.

Upon receiving institutional approval, an e-mail invitation was sent to all 137 student teachers (68 year 1 students and 69 year 2

students) who were undertaking the Professional Master of Education programme. In 2017-18, during the first year of the project, participation was only open to these students. As STER was run as a stand-alone voluntary initiative, not all 137 students participated. Nevertheless, all students were invited to complete the evaluation in the hope that information could be gleaned about non-participation.

In total, 27 students responded to the survey representing an overall response rate of just 20% when calculated against the total PME year 1 and year 2 cohort. However, of the 27 students who responded to the online survey, 12 had contributed to the running of STER as authors, reviewers, advisors etc, representing a response rate of 75% of the students who volunteered to *participate* in STER. This indicates that when students decided to get involved, they demonstrated a strong commitment to the project. The remaining 15 students who responded to the survey were students who attended the STER conference. These students did not volunteer to participate in STER but did *engage* with the output of STER. While all 137 students were invited to attend the conference, just 74 attended, therefore 20% of the students who attended the conference responded to the survey. Low response rates from attendees may have been influenced by the fact that the survey was released in late spring/early summer when students had completed their programme of study.

Findings

New forums for Dissemination and Student Engagement in STER

The first aim of the STER project was to create new research dissemination forums for student teachers to share their research findings for the benefit of peers, teachers and the wider education community. As a new project, one of the challenges faced by the coordinator was recruiting students to participate and engage with STER.

In the pilot year, student participation in STER was recorded as follows; First year students were invited to volunteer to assist in the running of STER. Of this group of 68 students, 10%$^{(n=10)}$ year 1 students volunteered to form two teams of STER volunteers: peer reviewers and conference advisors. Second year students were invited to participate in STER as research presenters. Of the 69 students invited, 13% $^{(n=9)}$ volunteered to share their findings at STER via journal articles, poster presentation and oral presentation. Engagement levels were disappointingly low but perhaps unsurprising given some practical challenges.

As previously identified, student disengagement with research methods was a concern of the author prior to establishing the project. Motivating students to engage in a new research-related project without any demonstrated benefit was difficult in the first year. Secondly, the time at which most students would derive benefit from peer-feedback is at the beginning of the research journey when research design is being finalised; and at the end of the data analysis phase, when findings and conclusions are being constructed. For both year 1 and year 2 students, this time was at the end of the Spring semester. Unfortunately, in initial teacher education where programmes are contact-heavy, and students juggle professional practice, coursework and assessment, the spring semester can be a very pressurised time. Students who did participate had to contend with balancing their STER involvement with final exam preparation, school placement and preparation of their dissertation.

Finally, participation in STER was a stand-alone, non-weighted project that existed outside the students' academic programme. There was some debate between the coordinator and the student advisory team about integrating participation into research methods assessment criteria. Ultimately, it was decided that the peer-learning community ethos which underpinned STER may be compromised by increasing the stakes and linking STER to an academic programme and assigning grades for dissemination. The team acknowledged that the lack of academic credit assigned to participation may contribute to reduced engagement by students.

Of the 19 students who did participate in STER, 16 students responded to question 3 which explored the factors that motivated them to get involved (see figure 3). The most significant factor influencing students' participation in STER was their interest in hearing about the research conducted by peers. All participants wanted to learn about the specific research topics explored and how their peers experienced the research process. One student said; '*it was a really worthwhile way to share ideas, learn from others and receive encouragement from those further along the line with regard to their research*' (year 1 student).

The benefit of hearing from other students was comforting to those starting out on the research journey; '*it was very beneficial to see students at the end of the process and ask them questions. More of this. Students are happy to receive advice from other students who are further along in the process*" (year 1 student).

Students were strongly influenced by the STER coordinator who advised them that getting involved would benefit their understanding of educational research. Interestingly, the benefit of research dissemination for students' CV was less likely to influence their engagement than their interest in acquiring new skills, sharing their findings or contributing to the co-creation of knowledge. Sharing their research with peers and a wider education audience gave students greater motivation for pursuing their research.

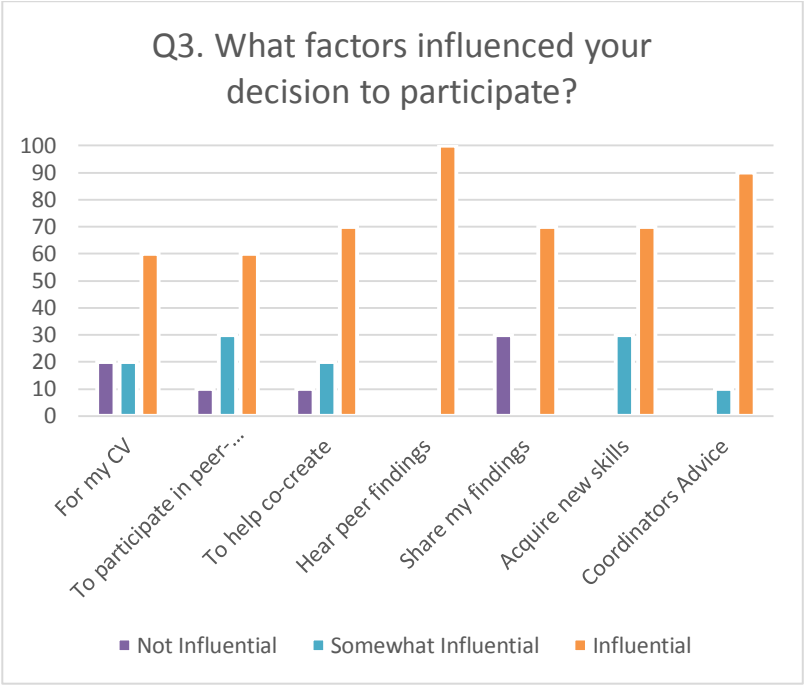

Figure 3 Factors Influencing Student Participation

One student referred to the timing of STER as a barrier to participation, suggesting that involvement could be seen as '*additional pressure at an already stressful time'* (participant year 2). The coordinator was mindful to be very transparent about how much time volunteers and presenters would be expected to dedicate. Broadening participation to include recent graduates would ease the burden on year 2 students during their programme but brings with it its own challenges.

Participation in the Peer Learning Community Enhanced Understanding and Engagement

The second aim of the STER project was to create a peer-learning network where students worked collaboratively to enhance their knowledge and engagement with educational research. Participants were given formal opportunities to engage in a mutual exchange of knowledge through a peer review process and through dialogue at the STER conference. The evaluation asked participants to reflect on their experiences of being part of a peer-learning network. Findings indicate that the peer-learning community was a safe space for students to reflect and develop. Participants valued the opportunity to collaborate with each other; one student said:

> I enjoyed working with my fellow students in the STER project, collaborating with them, learning from them, their experience of research. Where things went right and where things went wrong. Unfortunately, sometimes there are things that go wrong, just getting that feedback from them, and me providing it to them, was beneficial for us all (year 2 student).

Students felt that the skills they developed through collaboration were important for their future roles as teachers. One student said; "*there was a sense of community [with STER]. I think that it's important to instil in teachers a want to collaborate on research with peers for their future careers*" (Year 2 student). Similarly, a year 1 student stated; "*STER created a sense of community within educational research early on. It developed my mind as a teacher and opened up new topics and ideas*".

Dialogue between year 1 and year 2 students centred on the relevance of research findings for practice and on challenges and advice about the research process. In the evaluation, participants acknowledged the benefits of peer-to-peer dialogue and the authentic experience of collaboration; '*I learned the importance of peer feedback; it was a more exciting and rewarding way of working'* (year 1 student). Students felt that feedback from peers gave their research more focus, helped them to articulate their

research findings and exposed them to a wider variety of perspectives on educational research;

> It benefited my own research greatly. I found by partaking, it gave my research a better focus. It helped me to clearly conclude the findings in my research. I also appreciated the feedback from attendees which has inspired me to further research my area in my own time (Year 2 student)

> It is a very valuable initiative, thought provoking and an opportunity to share one's own research with peers and a wider audience of educators, as well as gaining beneficial insight and varying perspectives on others research (Year 2 student)

It was not just receiving feedback that is beneficial, but preparing constructive feedback provides clarity for some students (Moore and Teather 2012). One student reviewer said, "*I got a far better overall picture of what was expected of us in our research, and how it could shape our own teaching and further research going forwards*" (year 1 student). Student reviewers prepared feedback forms individually and then discussed their feedback with the team before deciding upon the most constructive assessment of the article. Although reviewing the work of a more senior student was challenging for peer-reviewers who were at the beginning of their own research journey, support and scaffolding was provided by the STER coordinator as 'a more competent other' and there were 'clear procedures for interaction, in which participants receive[d] specific training' (Topping, 2005 p.635-637).

STER reviewers benefited from the experience of synthesising, evaluating and providing feedback on others research, the benefits which have been widely acknowledged in other student peer-review projects (Lundstrom & Baker 2009; van den Berg et al. 2006). Reviewers said; "*learning from being a reviewer was great. I learned how to be critical and what readers are looking for in research*" (Year 1 student). Review meetings provided an opportunity for discussion about the type of research, the writing style and the significance of the findings. Reviewing research articles with the support of the team not only enhanced their

research literacy by presenting them with an example of research that had already been conducted, but also helped them to develop a critical lens. "*STER has helped me to better understand my interests in certain fields of education and I have become better at critiquing research similar to mine*" (Year 1 student).

Creating a research culture and improving understandings of Education Research

Contributing to the Teaching Council's goal of fostering a research culture within the teaching profession, the final aim of STER was to start a conversation about education research in initial teacher education that would continue throughout the continuum of graduates' professional careers. STER intended to deepen students understanding of and appreciation for educational research. Evaluation questions explored how participation in STER impacted students' knowledge, skills, and attitudes towards education research.

Figure 4 illustrates that participation in STER positively impacted students learning, particularly their understanding of educational research: $90\%^{(n=18)}$ of respondents identified an improvement in some area of understanding as a result of their involvement with STER. Almost all students developed their ability to articulate the relationship between research and practice; to present their research findings; and to make their findings accessible to a wide audience.

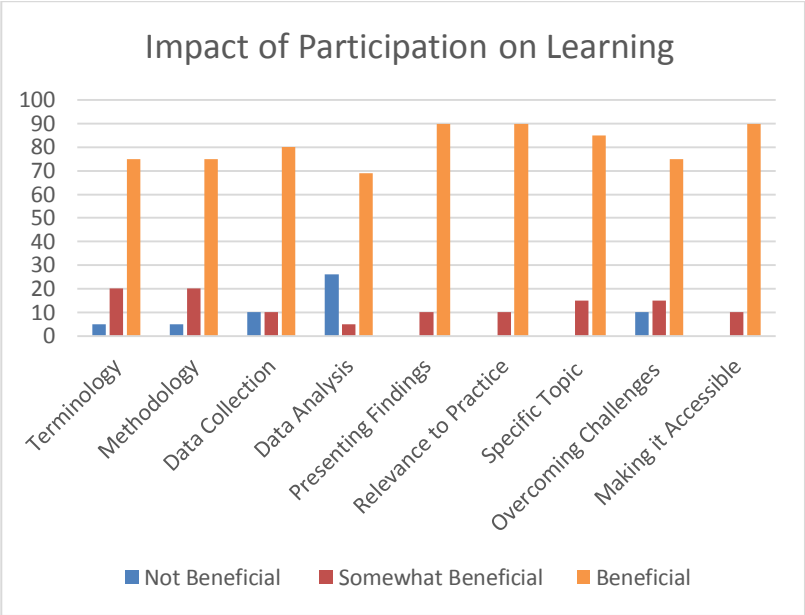

Figure 4 Impact of Participation on Learning

The practice-based, audience-oriented focus of STER changed the way that students approached their research project. Students reflected more deeply on the relationship between their research, teaching and learning in a classroom. A year 2 student said:

> I became more aware of the research process and my own research findings, and limitations, and how it can benefit my practice. Presenting my findings heightened my awareness of the questions people may ask and why certain methods are the best. [participating in] STER helped me to reinforce newly acquired "research" terminology and I became confident in explaining my research.

As a result of increased exposure to student teacher research via the online journal and conference presentations, students encountered a greater diversity of perspectives than they would otherwise have and developed specific research skills (Pearce et al. 2009). 75%$^{(n=15)}$

of students found that engagement with STER improved their understanding of research terminology, methodology and data collection. One student said; "*I heard different findings about the area I was researching. Also, I gained more information about areas in education that I had not thought of. It made me made me truly understand the terminology involved with research, which has really helped with the dissertation process*" (Year 1 student).

In the case of year 1 students, their new knowledge sometimes influenced the design of their own research. Participants noted:

> STER encouraged me to reflect on my data collection strategies e.g. prior to the conference I had surveys in mind for my own research. However, having listened to the volume of information collected via interviews from the students, I changed my mind. It also hugely developed my critical thinking skills which will be applied to my own work (Year 1 student).

In line with Wenger's (1998) bounded dimensions of a community of practice, students were brought together because of their mutual experience of educational research. The aim was to work towards ' common goal of enhancing their research literacy and to create shared meaning on issues or problems relating to their research project. Students found that presenting their findings in front of an interested audience was motivating. After months of writing and editing, engaging in discussion was an exciting experience. One student said: "*I really enjoyed it, it motivated and made me excited for conducting and writing my own research*" (Year 1 student). Other students found the interest and engagement of the audience in their research topic, highlighted the benefit and importance of their research project, saying:

> STER gave me an opportunity to gauge others' thoughts on my research which enhanced my impartiality to my research. It also improved my confidence in presenting to a group of informed people and helped me to believe my research was important (Year 2 student).

Starting professional conversations about research offered students the opportunity to enhance the development of graduate attributes and employability skills while also engaging them in meaningful learning to benefit their own research. Evaluation data indicate that participation in STER enhanced 90%$^{(n=10)}$ students' organisation, critical reflection and prioritisation skills as they balanced their involvement and research progress with the other elements of their programme of study. Figure 5 illustrates that 70%$^{(n=10)}$ of students felt they improved their writing skills and were better equipped to provide constructive feedback.

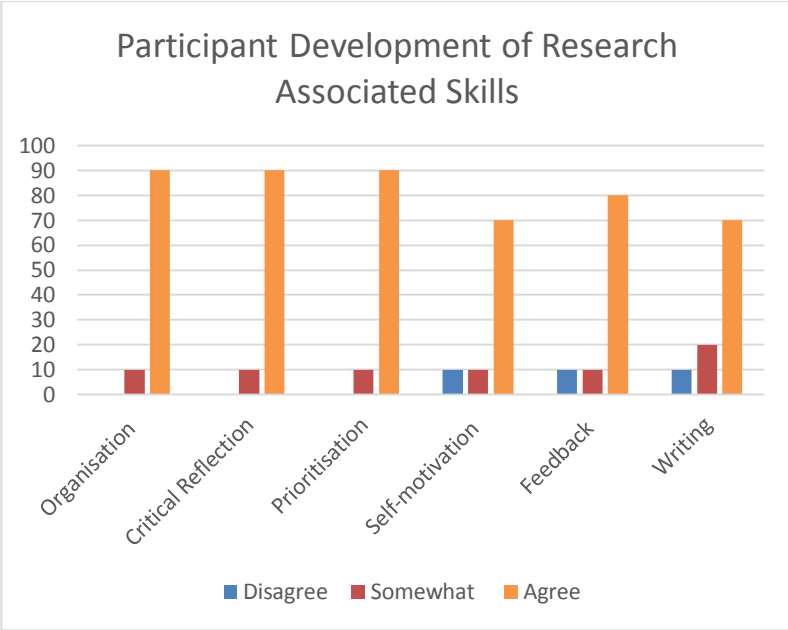

Figure 5 Participant Development of Research Associated Skills

The focus on knowledge creation rather than knowledge acquisition evidenced from participants' feedback is very encouraging. STER has sparked an interest in education research during ITE which may inform how graduates approach professional learning into the

future. Year 2 students said: '*STER became part of our initial teacher education and [is] something that can grow with us into our teaching professions*', "*It made me very interested in coming back to MIC to complete even more research when I qualify*". While overall engagement was relatively low in the pilot year of the project, the students who did participate were passionate ambassadors of STER. In the evaluation, participants reflected on the potential of STER for extending the learning into schools and other colleges of education, again highlighting the links between classroom practice and up-to-date research. Students said:

> [Teachers] would be enabled to hear about literature that relates to the practises and methods they employ in the classroom. They would get an insight into changes in education such as in STEM, maths and literacy, while also gaining an understanding of broader topics such as diversity in the classroom" (Year 2 student).

> Whilst the presenters are not PhD [students], it is real research, conducted within the last 12 months and relevant to practice. I think third level education as a whole would be foolish to not look at STER as an opportunity for further investigation" (Year 2 student).

The importance of student teacher research dissemination in ITE

Establishing an openness to and capacity for research-informed pedagogical practice early in ITE has the potential to benefit graduates' professional practice (Sahlberg and Hyland 2019). Closing the gap between research and practice, while concurrently developing research literacy skills has been one of the main successes of the STER project. Having taught research methods, supervised dissertations and worked with student participants on the STER project, it is clear to me that research dissemination is the key to bridging research and practice for student teachers. This is not to diminish the importance of developing research literacy skills through research methods lectures and conducting independent

research. However, it is in the process of translating research into an accessible format, highlighting the significance of findings for an audience and exposing research to critique, feedback and dialogue, that student teachers see the value of research-based practice. Data suggest that through participation in STER, student-teachers gained an appreciation for the importance of research for practice. They said:

> I better understood the purpose of educational research as it has impacted on my beliefs about teaching. I will bear the findings in mind for my own teaching' (Year 2 student).

> STER helped me to understand that education research leads to a more in-depth understanding of a topic. The real value of research is recognised when it is shared. One piece of research leads to another and another, which in time can inform and enhance developments in education (Year 2 student).

Dissemination also recognises the valuable contribution that students can make to their own learning and to the learning of others. Many HEIs have developed programmes and policies that position students as agents of their own learning and aim 'to stimulate active, not passive learning, and to encourage students to be critical, creative thinkers, with the capacity to go on learning after their college days are over' (DES, 2011, p. 43, cited in McCabe and O'Connor, 2013, p.350). In so doing, HEIs are recognising students' ability to create knowledge. As teacher educators we should also consider it our responsibility to acknowledge the value of the knowledge students produce. For one student, the dissemination opportunity provided by STER was an empowering acknowledgement of their contribution:

> You sometimes find you're asking yourself is anyone going to read this [dissertation], what difference will this make? STER gives you the opportunity to bring your research to life. It gives you a purpose. It ensures that your research will be heard. You feel it will make a difference in the educational landscape (Year 2 student).

Recommendations for Replication

Labour intensive, rather than resource rich, the model could be easily replicated by other colleges/departments of education who value student voice and wish to stimulate student research engagement. However, the design, implementation and management of STER has been crucial to maximising learning. Ensuring that dissemination is an authentic collaborative experience rather than an additional burden or 'tick-box' exercise is important. In the STER model, by honouring the voluntary nature of participation, encouraging cross-cohort collaboration between students, providing several formal and informal opportunities for meaningful dialogue, and ensuring a partnership approach to project management, all participants experienced benefits.

Conclusion

The potential of the STER project to embed research into initial teacher education is significant. Recent education policy development has ensured that research literacy will be a consistent dimension of teachers professional learning. Newly qualified teachers will be expected to engage in evidence-based research such as the School Self-Evaluation Model (DES 2012-2020); to engage in structured self-reflection and improvement as part of the Cosán (2016) model of continuous professional development; and to engage in evidence-based practice in *Taisce*, part of the Droichead Professional Induction Programme (2017). The STER model of student research dissemination provides student teachers with the opportunity to engage in a co-creative research dialogue, preparing them for their professional careers as teacher researchers.

Evidence from student feedback indicates that STER increased student engagement with and understanding of educational research methods. The practice-based, audience-oriented focus of STER changed the way that students approached their research project. Students reflected more deeply on the relationship between their

research and classroom practice, and they learned to present their research findings in an accessible manner for the benefit of a wide audience. New knowledge about educational research was created by students who combined existing knowledge with research presentations, professional conversations, feedback and reflection. The positive findings presented in this paper, although small-scale in nature, strongly advocate for the inclusion of dissemination as a core element of research-based teacher education.

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