

Chapter 16

Visionary Practice



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Abstract This chapter draws on the insights in previous chapters to present two visions for the use of partnerships in teacher education and the applicability of our STEPS Interpretive Framework as a language to inform and describe partnership work, and to show how education-focused partnerships can be set up to work most effectively in a range of other contexts. A discussion follows of how this framework contributes to the literature on partnerships follows as do some suggestions for limitations of their use.

Keywords Partnership model · Interpretive Framework
Educational and non-educational contexts · Limitations

16.1 Introduction

In this book, we have presented the STEPS Interpretive Framework that was developed from an analysis of five models of school-based approaches to primary science teacher education. The STEPS Project was established to examine partnerships emerging in the context of teacher education to enable pre-service teachers (PSTs) to gain authentic experiences of teaching science. The five universities involved had independently integrated school-based approaches with their university primary science teaching. Chapters 4–9 presented data from this research project that led to the development of the various components of the Interpretive Framework, which was subsequently validated with other science teacher educators across Australia and internationally and refined further.

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The Interpretive Framework distinguishes three different types of partnerships, Connective, Generative and Transformative, based on the level of mutual engagement between the partner organisations (Chap. 5). That the development of the Interpretive Framework was based on universal notions partnerships to providing of authentic learning situations to link theory and practice led the project team to speculate on how useful it might be in other contexts. In Part 3 of this book, we reported on how the Interpretive Framework was applied to other teacher education contexts (Chaps. 9–14), and to other learning partnership contexts outside of teacher education (Chap. 15). These chapters illustrate the flexibility of the model and show how others might use the Interpretive Framework to support their partnership work.

In this chapter, we draw these ideas together and summarise how the Interpretive Framework can add value to universities and/or other organisations wishing to develop partnerships oriented to authentic learning. Its value stems from the guidance for stakeholders to clarify the level of engagement within the partnership; to make key decisions about the desired pedagogical outcomes; to identify the mutual benefits; to guide the planning process; and determine the resources necessary to achieve the desired outcomes.

This chapter is visionary in two ways. We propose that (1) the *use of partnerships* within educational contexts is value-adding, addressing questions such as what counts as partnerships in teacher education and education more broadly; and how partnerships can be positioned and actioned to successfully link theory to practice; and (2) the STEPS Interpretive Framework can be used as a *partnership model* and is applicable in education and non-education-based contexts, recognising that, while arising out of the science education context, the model has applications beyond science to other areas of education. This applicability has been demonstrated through the case studies in Part 3. However, the model requires reinterpretation if it is to be a generic model suitable for others to develop context-specific language. Questions regarding “What is transferrable?” and “What needs reinterpretation?” are explored. Application of the partnership model requires a reassessment of the language, intentions and relative usefulness of the different parts of the model. In addition, the applicability of the partnership model beyond educational contexts is considered.

16.2 Vision 1: Using Partnerships in Education

As described in Chap. 2, the partnerships in the STEPS Project arose in response to systemic problems in science education a general lack of commitment by practicing teachers to teach science in a dedicated way in schools, a tendency for formal practicum to provide few experiences of teaching science and a tendency for PSTs to come to their initial teacher education with a history of negative science experiences and attitudes. One of the primary motivations for involvement in a partnership during initial teacher education is the opportunity for pre-service teachers (PSTs) to gain authentic experiences of teaching a unit of science to children.

With much of the science teaching embedded in authentic classroom experiences, the teacher educators were able to be present at the schools during the teaching period and evaluate the success of their own science education programs as well as observe the ways in which classrooms and schools are evolving over time. One of the primary motivations for involvement in a partnership during initial teacher education is the opportunity for PSTs to gain authentic experiences of teaching a unit of science to children. PSTs need a successful and authentic experience of teaching science to children to not only enhance their knowledge and capability in teaching science but also to build their confidence. PSTs are presented with an opportunity to apply and practice the theory learned in the university setting in a timely and often concurrent manner where the teacher educator supports PSTs to bring theory into their teaching practice. This concurrent theory–practice learning is not always possible when the formal practicum or professional teaching experience sits before or after curriculum units, or even once teachers have entered the profession. It enables the teacher educator to address issues with PSTs and assist them to reflect on their teaching practice.

In considering the broader application of the Interpretive Framework, three other examples from teacher education were described in Part C of this book. These examples illustrate how different groups are using the Interpretive Framework to support partnerships to establish and maintain high-quality educational outcomes within three teacher education contexts: a long-standing relationships around program development schools in the UK (Chap. 10); formal practicum arrangements where negotiation of partnerships involved high-level leadership at the school and university levels (Chap. 11); and formal practicum involving a consortium of key players in Catholic education (Chap. 12). Each of these chapters describes partnerships that are rigorously negotiated and seriously embedded into the institutional structures. The partnerships arrangement in each of these was crucial to the developing strong commitment to designing models of practicum that were responsive to the needs within the sector.

One of the lessons from the STEPS Project was the need for responsiveness to changing circumstances within any given partnership arrangement. For example, for each partner, practicalities such as staff changes or changes in the leadership can lead a partner organisation to reconsider its strategic priorities at any time. Similarly, changes to education policy or funding arrangements for schools or universities may affect a given partnership. Thus, partnerships are dynamic in nature and the relationships that sustain them must be developed and maintained over time as discussed in detail in Chap. 1.

16.2.1 Policy Influences in Initial Teacher Education

As outlined in Chap. 1, the Teacher Education Ministerial Advisory Group (TEMAG 2014) report recommended that all primary PSTs should acquire “at least one subject specialisation, prioritising science, mathematics or a language” (p. 22).

In 2017, AITSL published Program Standard 4.4, which provides further guidance for the inclusion of primary specialisations, as a requirement of accreditation of all initial teacher education programs in Australia. This has direct implications for “the structure and/or content of many initial teacher education programs” (p. 3). As distinct from secondary teachers, the aim is not to produce primary teaching graduates who teach in only one curriculum area. They are to still be generalist primary teachers, but with a deeper focus in their particular specialisation. Primary specialisations are described as “clearly defined pathways into and/or within a program” (p.1), with a focus on subject/curriculum areas that are in demand, and where PSTs will be required “to demonstrate expert content knowledge, pedagogical content knowledge and highly effective classroom teaching in their area of specialisation” (p. 1). As demonstrated in the STEPS Project, authentic school-based learning experiences for PSTs during primary initial teacher education programs would provide these deep learning opportunities. The Interpretive Framework can inform the redesign and implementation of initial teacher education programs to incorporate specialisations.

This has direct parallels with the STEPS Project, and because it was derived using universal notions of partnership and authentic learning linking theory to practice, as described above, there is no reason why this notion of a school-based component to provide authentic teaching experiences for PSTs cannot be applied more broadly, for example, to other specialist curriculum areas in teacher education such as Arts, Technology, Languages, Mathematics, Music, History. It also presents a specific opportunity, outside of the normal practicum, for PSTs to demonstrate their ability to meet the higher end Australian Institute for Teaching and School Leadership (AITSL) standards (AITSL 2015) within a chosen specialisation.

The above work also illustrates how the Interpretive Framework can guide the required process of consultation with education and accreditation bodies to rethink how practicum components of ITE programs can be more effectively integrated with the university learning and to address the long-standing criticisms outlined in Chap. 1.

These policy drivers ensure the teacher educational landscape is constantly changing, and partnerships need to be responsive. In the next section, we illustrate the evolving nature of partnerships by giving an update on the status and structure of two school-based models from the STEPS Project: Deakin University and University of Tasmania (UTAS).

16.2.2 Update: Deakin University Science Program

In 2016, as part of reaccreditation of the Bachelor of Education at Deakin, the science unit in which the school-based model is placed was moved from third year to final trimester fourth year. During fourth year, students are firmly focused on preparing applications for jobs and teacher registration. Three elements were embedded into the science unit where teachers from the partner schools could interact more with the PSTs so as to increase engagement with the profession and improve teacher readiness. Firstly, PSTs “interview” the classroom teacher in their first week at the

school to ascertain information about the students (such as particular behavioural issues or learning needs) and the content to be taught (such as how to link with the school's teaching plans). Secondly, in the last couple of weeks, the PSTs report their learning to the classroom teacher through "reflection circles" and engage in professional discussion about how their teaching shows evidence of them achieving the graduate professional teacher standards (AITSL 2015). Thirdly, a "Celebration day" was introduced where the children showcase their learning to each other or other people in the school, supported by the PSTs.

Each of these elements is negotiated at the school level by the teacher educator such that each element might play out quite differently at each school. For example, PSTs at one school might report only to their classroom teacher, whereas at another school, the PSTs might report to all of the other PSTs or to all of the teachers. The Celebration day can involve children from just the year level involved in the partnership, parents or children from other year levels, and it might run as an expo of artefacts, role-plays, songs or videos.

These new elements add an extra layer of complexity to the program that can sometimes be difficult to manage (e.g. the teachers may not be available for the reflection circles or the initial teacher interview); however, the effectiveness of these elements can be improved by remaining flexible and working positively with school teachers and leaders to find creative solutions when complications arise. The teacher educator and the unit chair or campus coordinators are responsible for negotiating the various arrangements, most of which can happen during the three-hour school workshop, so additional time for such arrangements is relatively minimal, an important point when considering how to resource these types of initiatives.

The continued involvement of the schools illustrates the value placed on their involvement in the "Deakin science" program and that the expectations placed on the teachers are not too onerous in most circumstances. The STEPS Interpretive Framework, in particular, the GUSP, has been valuable in reconsidering the aims and rationale for the Deakin science program, and in planning the learning outcomes for the PSTs. We will use the Partnership Negotiation Tool (PNT) to evaluate the changes to ensure that they are meeting the varying needs of the partners involved. We believe that involving the schools more helps us move towards a more transformative partnership, although we believe that it is important for us to maintain some distance from the schools' aims as we need to allow our students to focus explicitly on teaching science using the 5Es and "representations" as the key informing theories; we have found that it can be problematic if schools have too much input into what and how science is taught. We believe that a generative partnership is therefore suitable for meeting the needs of our students.

16.2.3 University of Tasmania Partnership Proposal

Like other universities in Australia, UTAS has to respond to changes in policy driven by notions of work-readiness and the quality agenda. This is reflected in a broader

Table 16.1 Proposed pilot projects to use the Interpretive Framework to redesign ITE at UTAS to better integrate university learning with authentic practice

B.Ed (Primary) <i>Focus</i>	Type of partnership	M.Ed (Secondary) <i>Focus</i>
Year 1 & Year 2 <i>Connecting with teaching and school</i>	Connective	Year 1 <i>Connecting with teaching and schools</i>
Year 3 <i>Engaging with the profession</i>	Generative or transformative	Year 2 <i>Engaging with the profession and building your identity as a teacher</i>
Year 4 <i>Building your identify as a teacher (specialisations)</i>		

push across the university to include work-integrated learning (WIL) approaches and more employer engagement as a key curriculum priority across all disciplines. Clearly, also an organisational perspective is needed to address resourcing questions such as workload impacts and resourcing questions associated with WIL as discussed in Chap. 1.

Given these policy drivers, it is timely to consider what this might look like within the Faculty of Education and how the Interpretive Framework might inform better integration of university learning with the practicum and the inclusion of specialisations within the primary ITE program.

The proposal below illustrates how the Interpretive Framework could help to guide the conversations between Faculty leaders, the Education Department in Tasmania and other providers and leadership within the university. Table 16.1 draws on the Representations of Partnership Practices (RPPs) from the Interpretive Framework to suggest how the two existing ITE programs offered in the Faculty might be redesigned to accommodate the external and internal policy drivers outlined above.

In essence, each year of the ITE programs adopts a specific learning focus which has implications for the required level of partnership engagement to achieve the learning outcomes. In the early stages of the ITE programs, the learning focus is on helping PSTs to connect with schools and teaching, but, in the latter stages, the focus shifts to helping the PSTs build their professional identity and transform themselves into professional “classroom-ready” teachers.

Under the current arrangements, schools are largely involved on a Connective basis. The greater clarity of learning focus as PSTs progress through the course would guide conversations between the university and the Department of Education, and other providers, to identify the level at which each school is prepared to be involved in the PE program. Some schools would chose to continue with a Connective involvement, by providing PSTs in the early stages of their teacher education program to become familiar with schools and teaching. This would enable PSTs to gain a realistic experience of life in schools and engage with teachers as colleagues. This

is an important aspect of beginning teachers developing a more realistic view of teaching as a profession and deciding if it is what they want to do.

Other schools may be identified as willing to be involved in partnerships at the Generative and Transformative levels of engagement, largely to support those PSTs in the later stages of their course. The schools could provide access for PSTs to develop subject specialisations or provide internship approaches with the practicum experiences integrated with the university program in the final year and to help them to meet the AITSL graduate teacher standards and transition into the profession.

With sufficient schools identified at the various levels of engagement, it would enable a more concentrated effort delivering on PL for mentor teachers in the generative and transformative schools. Over time, schools may change their level of involvement, but this again would be part of the ongoing conversations.

Schools that decide to engage in the PE program at a Transformative level would commit to working collaboratively with the university lecturers and the PSTs to develop the professional identity of each individual and build their professional competence and ability to meet the requirements of the graduate teaching standards.

The Interpretive Framework would be central to driving this process of clarifying the project and establishing a commitment to action. It would also provide a significant research opportunity for the Faculty to take a lead in researching and evaluating the design of effective teaching education and provide guidance to staff involved in leading and organising on how to develop and maintain the partnerships that underpin WIL programs. The planning materials in STEPS Interpretive Framework could be of great assistance in clarifying the educational issues and guiding universities to ask the right questions to ensure the programs are set up to succeed in terms of the educational outcomes and the resources needed to achieve them.

16.3 Vision 2: A Partnership Model for Education and Non-education-Based Contexts

The growing push for work-ready graduates and the rising emphasis on work-integrated learning (WIL) is also documented as a longer-term trend in universities. The indications are that the STEPS Interpretive Framework provides a framework in which these educationally based partnerships can be negotiated in a range of disciplines, as discussed below.

While recognising that the STEPS arose out of the science education context, the case studies in Part 3 of this book demonstrated that the model has applications beyond science education to other educational and non-educational contexts. This showed that the Interpretive Framework is transferrable, but it begs the question about what changes need to be made to make it more generalisable and what specific aspects of it need to be changed or reinterpreted to suit different contexts?

Our research indicates that the Interpretive Framework could be used to guide the formation or evaluation of partnerships in a range of other contexts. It was relatively easily adapted with minor adjustments to the questions and language used in the

original documentation to make it them more suitable to the specific setting, the desired educational outcomes and the inclusion of more context-specific language. As a sustainable methodology, to establish and support educational partnerships, the Interpretive Framework needs also to support the stakeholders and decision-makers to adapt to ongoing policy and social changes.

In Chap. 12, Cooper, Cowie and Campbell found that there needed to be initiation and negotiation with “stakeholders at different levels and with different responsibilities within the system that was the partnership”. In particular, high-level discussions were needed to get the partnership practices and learning opportunities embedded into the university structures.

In Chap. 13, Hobbs, Cripps Clark and Plant identified that greater time and energy needed to be given to introducing the professional development program to principals associated with the Skilling the Bay Project, prior to the formal negotiation and initiation phase as identified in the GUSP and as supported by the Partnership Negotiation Tool. The Deakin consultant was seen as a crucial element in the program, assisting leaders to establish joint working parties, consider the nature of the learning desired and the process steps and resources necessary to get there. This supports the importance of the notion of “boundary spanners” to work actively across the interface of the organisational partners to maintain communication and as suggested by Peach et al. (2011).

In Chap. 15, it was applied to improve learning partnerships in two case studies in health education. In the first, there were existing problems with the clinical experience training aspects of nurse and medical staff. The university firstly used the STEPS Interpretive Framework to evaluate the nature of the situation and identify where the problems may be occurring. Many of the problems reported were associated with linking theory from university to practice, but there was little coherence between the learning opportunities within a busy health education environment, with mass student intake, and what was happening at university. The need to pass large numbers through the crowded healthcare organisations (HCOs) was reminiscent of the situation in schools where PSTs are often placed in schools with little connection to their university studies (Chap. 2). Through the RPP, the Interpretive Framework allowed the health educators to identify their partnership as connective, but to also aim towards creating a more generative form of partnership. The Interpretive Framework planning documents provided a framework to envisage the type of generative learning situation they desired, and the tools suggested an approach to establish and develop a more productive partnership to bring this about.

In the second case study involved the development of two medical–legal partnerships (MLPs) to support people with mental health issues to deal with legal issues. The Interpretive Framework was used to guide the establishment of the MLPs and helped to identify the need for more research into how they work in an Australian context.

16.3.1 Learning Partnerships for Universities

In Chap. 1, it is noted that there is widespread criticism of university graduates and calls for more “work-ready” graduates. Work-integrated learning (WIL) is generally seen as inherently valuable by all stakeholders. While WIL has been a long-standing and highly valued component of many university professional courses, mass education has resulted in difficulties placing students and a growing disconnect between the university learning and the industry placement experience.

Agencies like Teacher Education Quality Standards Agency (TEQSA) have expressed concerns that WIL can also be poorly organised and ad hoc, such as in mass placement programs, leading to poor educational outcomes and little time for genuine reflection on practice. To minimise this risk, TEQSA has outlined standards that universities are expected to meet in the delivery of their programs. Students need guidance and support to get the most out of these programs, and the participating partners also need to have their own needs met.

The resource and educational demands of integrating work- and university-based learning experiences can be very valuable, but depend on functional partnerships to work effectively.

Looking more broadly at how the STEPS Interpretive Framework can be applied within universities, it is clear that partnership work is essential to achieving the goals and imperatives of universities; however, not all universities have a clearly articulated partnership framework that encompasses the range of partnerships opportunities available.

Broadly speaking, most universities engage in the following: Australian and international academic partnerships that provide pathways to enrolments; research and consultancy that situate the university within the nexus between industry, government and the professions; community engagement activities as service to the community through provision of services (such as training) and products (illustrated in Chap. 13 as professional development for schools); researcher development for theoretical and applied research where industry perspectives are essential for informing the generation of new theoretical perspectives, new theoretical perspectives influencing industry practices; and embedding industry experiences for students through WIL schemes (as discussed above) where partnerships between workplaces, academics and students are designed to meet the needs of both the employers and students.

Drawing on the language of the Principles of Partnership Practice (detailed in Chap. 4) and the GUSP (Chap. 6), a modified set of practice principles can be generated to inform this broader partnership work between universities and industry. Table 16.2 identifies five principles that underpin university-industry partnerships: commitments of university and industry partners; theory–practice links, which should be inherent and embedded within partnership; description of the learning and research that might be achieved; the roles of each partner; and how reflection and evaluation processes might be embedded so as to inform the vibrancy of the partnership.

These principles can be part of a framework used for establishing, maintaining and evaluating university–industry partnerships. As stated, this focus on industry

Table 16.2 Practice principles and guiding questions for university–industry links

Principle	Guiding questions
<p><i>Commitments</i> Partnerships are established because of a commitment to improve or achieve quality university and industry practice, and their ability to enhance the quality of university student learning outcomes</p>	<p>What are the commitments being demonstrated through the partnership? How is commitment to quality built into the partnership arrangement?</p>
<p><i>Theory–practice links</i> Partnerships allow for authentic engagement between the university and industry through providing links between practice and theory</p>	<p>What do university and industry partners potentially gain from this authentic engagement?</p>
<p><i>Learning or research environment</i> Partnership arrangements must take account of the specific learning requirements of the university and the professional and/or industries involved</p>	<p>How will the partnership assist the university and partner organisations to establish a learning/research environment that meets the professional and industrial requirements?</p>
<p><i>Roles for supporting practice</i> The roles that university and industry stakeholders play in supporting practice, and one another, should be clear and relevant for the purpose of the partnership</p>	<p>What are the role expectations for providing support to all members of the partnership?</p>
<p><i>Reflection on practice</i> Learning requires critical reflection on practice</p>	<p>How is critical reflection built into the partnership arrangement?</p>

is topical given the focus on “work-readiness” and “employability” direction of university goals in the current era (ACEN 2015; Oliver 2015).

Education appears to be becoming a means to prepare people for the world of work, with a general shift away from the view that education can serve a greater good that transcends the specific requirements of the workplace. There needs to be concerted efforts to ensure that this latter perspective is not lost. Partnerships between universities and industry therefore need to be developed while keeping in mind the deep learning that can be achieved through this theory–practice nexus, recognising that university engagement with industry and the community can lead to reciprocity that is meaningful exchange of ideas and practices that have mutual benefits. Careful integration and articulation of the learning or beneficial outcomes are essential; this focus on learning outcomes is critical in the work we have been doing with our partner schools and is illustrated in Chap. 3.

16.4 Using the Interpretive Framework—New Insights and Limitations

The STEPS Interpretive Framework provides a language for people moving into or wanting to articulate their partnership. The GUSP “Nature and Quality of Learning” component (Chap. 6) demands careful articulation of what each partner stands to benefit from the partnership, whether the partnership is Connective, Generative or Transformative (Chap. 5). School-based approaches to science teacher education have clear potential for identity work (Sveningsson and Alvesson 2003) and improving teacher self-efficacy and confidence, improved praxis, and increased capacity to work within and develop relationships, as was shown in Chap. 8. Chapter 11 shows how the language of the GUSP can be applied to monitoring and evaluation of other university–school partnerships. In Chap. 13, the nature and quality of the learning section of the GUSP was adjusted so that each school could direct the focus of what learning they hoped to gain from participation in the teacher professional development program.

Chapter 15 suggests that some changes to the language of the Interpretive Framework might be appropriate to better match the context. For example, the GUSP might be more aptly called Generating Learning Partnerships (GLPs) to reflect the possibility of supporting partnerships in a broader learning contexts beyond teacher education.

The RPP (Chap. 5) and GUSP (Chap. 6) are important contributions to the literature relating to partnership work. Kruger et al.’s (2009) work comes close, although the RPP gives credence to connective partnerships that is those intended for short-term gain and perhaps one-sided impact. We believe it is still useful to label these as partnerships. The other point of difference is that we do not see the typology as hierarchical; all partnership types have value as long as they are purposeful and meeting a need, as illustrated in the proposal for change at the University of Tasmania. There can be a tendency, for example, to aim for transformative partnerships when establishing a school-based model in teacher education; however, the resources and relationships needed are intensive and often a generative partnership may be appropriate to meet the needs of the university and school.

The growth model (Chap. 9) provides a framework for considering the variables that can give a measure of the effects of the partnerships and is particularly relevant for partnerships where there are strong learning outcomes for particular members, e.g. the PSTs in our school-based models. Where these types of partnerships are transformative in design, then learning outcomes for teachers might also be articulated and examined. For example, if the focus of learning is on inquiry questions that are conceptualised and examined by PSTs and classroom teachers together, then there could be additional learning outcomes for teachers or school, such as degree of teacher change in practice or new curriculum initiatives in the school. These professional learning opportunities would be explicitly written into the partnership agreement and could be examined through other variables.

A limitation of the RPP is that the language used. It can be confusing for some whether it refers to the partnership model overall, or to the possible impact on individual people within the partnership. For example, in one of the UTAS Generative school-based science partnerships, learning was intended for all involved, including teaching staff, but the emphasis was on change in practice and identity for the PST. There was no significant expectation that the partner school would change. However, a teacher participating in this program was quite transformed by seeing effective science teaching and was prompted to change their practice and structures within the school. In another school, involved in the early years of the RMIT school-based program, introduced a science specialist into the timetable after seeing the enormous effect that a sustained science program can have on student engagement and learning. While the effect of this change might be considered transformative for the school, but it actually reduced the involvement of all the other teachers in teaching science at their year level because the science program ran only during the specialist classes and the teachers were effectively removed from the partnership. The classroom teachers were removed from the partnership. This example illustrates that use of the RPP needs to clearly articulate whether the language is being used to describe the overall intended nature of the program and its anticipated effects for those involved. In the above example, while the school program was transformed by the inclusion of a specialist, the intended science PL for the generalist classroom teachers was inadvertently reduced.

The Partnership Negotiation, Monitoring and Evaluation Tools (PNT, PMT and PET) are particularly relevant for supporting partnership work. As has been discussed, they are written specifically for university–school partnerships associated with science teacher education, so the specific language or questions may need to be modified to suit a different context, but the general headings are particularly transferable. They enable careful planning and thoughtful exchange of ideas that respects each partners' roles in the partnership. As mentioned by the authors of Chap. 12, they can be modified to be used at all levels of the organisation. According to the authors of Chap. 13, they can be used as a mediating tool for the partnership that provided a “road map and schedule for the journey”. In turn, the tool was modified as the needs of the partnership and focus of the learning changed. They state that “the relational nature of the tool enabled it to be adapted to both the individual schools' needs and to the program as it developed”.

16.5 Conclusion

Our first vision arising from this book is that school-based approaches are a way of meeting the needs of both the profession and university initial teacher education as long as the relative knowledge and skills of each are respected. As part of our analysis of the current trends in school-based approaches in initial teacher education around Australia, evidence emerged from other science educators of attempts to run similar programs, but these relied on the dedication of individuals, who took on

large workloads and often the programs lacked full integration with the institutional supports and resources (Kenny et al. 2015). Despite these challenges, the five models presented here, and others around Australia, have perpetuated, at different levels of embeddedness, but they are sustained because the partners believe in what they can achieve.

Partnerships offer a way forward, at all levels. While partnerships in education are not new, doing them well so that there are ongoing benefits for all can be challenging. We are in a state of change where there are greater demands on universities to engage more seriously with the professions. This nexus between the profession and university education is necessary to ensure teacher preparation is informed by both theory and practice. It is in this nexus that practice is no longer situated solely in schools, nor is theory situated only at university. Reciprocity means both contribute something meaningful to the interaction.

The third space and boundary spanning metaphors are useful for conceptualising these approaches, as mentioned in Chaps. 1 and 15. This space exists at the boundaries between the university and the external organisations, be they school or industry. While the specific needs and expectations of different organisations may differ, there is a common need for this boundary spanning work. This is how successful partnerships can be established and maintained, and university is central to driving this agenda if the partnerships are to lead to effective learning. Who stands to learn is critical to establish early on. Careful articulation of the outcomes of the partnership is needed, and boundary spanners can be well supported by the STEPS Interpretive Framework, especially the GUSP and the Partnership Tools.

Clarity about the nature and quality of learning is crucial to ensuring growth and sustainability of the partnership. Decisions need to be made about the degree to which the partnership practice is embedded within the core business of each partner, that is, whether the partnership is to be connective, generative or transformative. The enablers of growth (Chap. 8) ensure that this articulation occurs when the partnership is negotiated, maintained, renegotiated and evaluated. The principles of partnership practice are important also at all stages as they can be used to establish rules of engagement. The nature of the learning and relationship elements is likely to change depending on the changing needs and how well the original design matches the needs of each.

The second vision is that the STEPS Interpretive Framework be utilised as a partnership model to support educational and non-educational partnerships. Some translation is needed to ensure that this is possible. Certainly, within universities, there is much scope for translating elements of the model to support the recent push to have strong links between university and industry, as demonstrated through WIL. A partnership framework that situates the university as essential for education beyond the immediate technical requirements of industry would focus on the reciprocal benefits that each partner plays in achieving high-quality learning outcomes for the university students, as well as having outcomes for industry beyond just adequate preparation of the next generation of potential employees. In addition, the Interpretive Framework is worthwhile outside of universities and schools, as

was demonstrated in Chap. 15 where the RPP is used to articulate the partnership elements of a medical–legal partnership.

The STEPS Interpretive Framework provides language for articulating the nature of the partnerships and the intended learning, reminders for what is needed for strong partnerships, such as risk-taking and trust, reciprocity and mutuality, recognition of respective goals, respect, adaptability and responsiveness to changing needs, and diverse representation of the types of partnerships possible, that is connective, generative or transformative. The framework also ensures that stages of initiation and negotiation, monitoring and evaluation are embedded within partnership discussions, arrangements and documentation, such as through memoranda of understanding.

As a project, STEPS enabled us to put our respective science education programs under the microscope. What emerged from our analysis, and reflection on what we did, was a deeper understanding of why it works. Each of us has been influenced by the successes and challenges. The STEPS Interpretive Framework gives us the language, and a process, to articulate what how to establish, maintain and evaluate our partnerships and to justify the resources that might be needed. The tools of the Interpretive Framework were very useful for us, and, in Part 3 we demonstrated their applicability to other contexts, so we feel confident that they will be useful for others.

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