TEACHER EDUCATORS: FACILITATING TRANSFER OF TRAINING

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Abstract

Transfer of training (ToT) refers to the application in the work setting of knowledge, skills and attitudes learnt via a training/professional learning programme. It is a complex, debated concept that has its origins at the beginning of the Twentieth Century. In the past 40 years, there has been a rekindling of interest in the topic and numerous theories/practices promoted frameworks to facilitate transfer in work settings. Nevertheless, there has been discussions and debates about its definition, nature, occurrence, conceptual clarity, value, theoretical foundations, utility, transfer enhancers/barriers, contextual condition and measurement. Initially, interest centred on organisational and human resource contexts, but increasingly attention has been given to transfer of professional learning. In this paper, attention is directed to ToT as it relates to the role of the university teacher educators (TE). Although a growing literature on ToT and professional development, minimal research has been directed to the TE’s knowledge/use of transfer and how to promote implementation. Reference will be made to two recent studies (in New Zealand and Samoa), the aim being to identifying TE educator transfer knowledge/skills in teacher preparation programmes. Purposeful sampling was used to identify voluntary experienced TEs. This qualitative investigation used face-to-face semi-structured interviews with 10 New Zealanders and 6 Samoan TEs and was undertaken to provide data from two very different educational settings. Interviews centred on the ToT knowledge and practices of the TEs. The results indicated that although there was some understanding of transfer and its importance by most participants, there was little knowledge and use made of the ToT theories and evidence based practices. This was an important study because it highlighted the need for TEs to incorporate effective transfer strategies within their approach to impact upon teacher trainees’ performance. Furthermore, the findings add to the international literature on ToT within professional preparation programmes and provide additional evidence about the need for key players to be aware and utilise explicit transfer knowledge and skills. Reasons for this incomplete understanding and limited use of transfer strategic approaches are considered and it was concluded that there is a pressing need for the incorporation of evidenced based ToT ideas in professional development programme. The need for additional research is outlined.

Keywords: transfer of training, teacher educators, university.

1 INTRODUCTION

A teacher educator’s (TE) work is complex and demanding and one important role is to facilitate the skills and knowledge of student-teachers enabling them to introduce practice ideas in the classroom. In this paper, it is recommended that the evidence-based literature on transfer of training (ToT) could make significant contribution to student teacher the implementation of ideas into classrooms. However, there has been minimal research concerning TE’s understanding and implementation of ToT strategies in teacher initial training. The ToT literature, at times referred to transfer of learning (ToL) or generalisation, can provide some general guidelines in the absence of specific research but increasingly, ToT and professional preparation is being explored and can provide suggestions for practice. There is therefore an urgent need to utilise ToT research findings and relate this to professional learning of teachers [1].

Several researchers [2], [3], [4] have indicated that little is known about the theory to practice-link in teacher education. Loughan [3] in defining that a teacher trainee voice was important determined that a simple modelling of skills was insufficient and Zeichner [4] and Grudnoff [5] acknowledged the importance of a teacher trainee voice within a collaborative context to establish theory-practice links. These researchers emphasise the theory to practice relationship and are important because they highlight the teacher educator’s role, the importance of a collaborative approach, the implication being for TE’s practice to be centred on the ToT research outcomes.

Some research, albeit little, has been undertaken concerning the lack of facilitation of the promotion of student teacher implementation of ideas into classroom practise. For instance, Markelz, Riden, and
Scheeler [6] identified that generalisation remains a missing link and Kretlow and Helf [7] highlighted the lack of fidelity. What’s more, despite the findings of Bae, Wolf and Risley [8] some 50 years ago about the importance of generalisation, it remains a problematic issue and Engelmann [9] indicated some years later that less than 30% of student teachers’ learning was transferred. The question remains - why is the transfer problem persisting? Markelz, Riden and Scheeler [6] argued that it was because there was a disconnect between university and classroom realities and Gable [10] identified that a ‘train and hope’ paradigm was often adopted in teaching contexts. As noted by Zeichner [11] TEs are often “not aware of what is known from research about how to support teacher learning and its transfer to the early years of teaching in the context of a university-based teacher education program.” (p.481) Acknowledging such difficulties, Scheeler, Budin and Markelz [12] promoted a 4-step generalisation model for TEs to teach more effectively including attention to immediate feedback, mastery training, use of generalisation strategies and performance feedback in classroom settings. This supported Hattie and Timperley [13] findings that performance feedback was a critical dimension in this practice. What is needed however, is to acknowledge the significance of these findings and incorporate them into what is also known about ToT.

As indicated, ToT literature can provide additional approaches to promoting student teacher application of learning ideas. Over 10 years ago, ToL was investigated but it was a controversial issue because Thorndike [14] promoted the idea that similar elements in both contexts were crucial, whilst Judd [15] advocated the importance of a principled approach that transfer occurred via learning general skills. However, after this initial flurry of interest, the concept and its importance languished for over 50 years but during the latter part of the Twentieth Century, interest was reignited again as trainers sought to improve the impact of learning into the workplace. The conceptual term ToT evolved from the work of Goldstein [16] who investigated transfer in the context of workplace training. Essentially however, the current interest in ToT was heightened by the seminal paper of Baldwin and Ford [17] who advocated a ToT framework model incorporating three phases in workplace learning: inputs (planning), learning and retention, and outputs (generalisation and maintenance). In psychology, the operant conditioning paradigm of B. F. Skinner had already become commonplace with a prominence given to generalisation “as a procedure that increases the likelihood of a target operant response [causing] an increase of other responses that resemble the target response.” (p.1255) [18] Cognitive science commentators [19] have also made this concept more meaningful emphasising the individual’s mental models (of the real world) and comprehension and retention of ideas. Regardless of these developments and the adoption of the term ToT, numerous discussions have occurred and debates persisted about its definition, nature, occurrence, conceptual clarity and value, theoretical foundations, utility, strategies, measurement, and identification of enablers and barriers [20]. Some, even dispute that Tot can occur [21] but, given the growing evidence-based research and strategic approaches, it is agreed by many that ToT can be achieved [22].

One of the significant confusions that occurs is the lack of clarity given to the terms ToT and ToL for often thy are used interchangeably. It is generally agreed however, that ToT refers to a purposefully designed learning intended to achieve on-the-job impact. Although it is a term disparaged by some due to its implied association with the behavioural technicist paradigm, it is a valid term precisely defining its nature and has credibility in psychology and other disciplines to imply an appropriate use of application of ideas/skills to another context. Furthermore, the term ToT has mostly moved beyond the behaviouristic technicist approach and assumed a pervasive behavioural-cognitive position [23][24]. For example, Blume, Ford, Baldwin [25] and Huang [26] acknowledge that ToT is a cognitive process of generalisation and maintenance of knowledge and skills acquired from formal learning and Billet [27] defines it as “individuals construing what is experienced, aligned and reconciled with what is known and then constructing a response, which is mediated inter- and intra-psychologically.” (p. 6)

A further issue relates to how to teach for ToT. In the past, a smorgasbord approach has been adopted with strategies used in a haphazard fashion. It is now recognised that the most efficacious approach involves the development of a strategic approach/plan which is logical, coherent and integrated with what is known about the science of learning [28]. For example, Daffron and North [22] have outlined in case studies of medics, teachers, lawyers, adult educators (and others) how ToT can be achieved via 7 key interactive factors into a programme: learner characteristics and motivational strategies, design and delivery, learning context, immediate application, workplace environment factors, and elimination of barriers. One significant development has been the promotion of a learning transfer inventory by Bates, Holton, and Hatala [28] and this has identified, via empirical studies, 16 key factors (categorised into three key dimensions of ability, motivation and workplace) that account for effective ToLlearning. McDonald [29] advanced this idea further and developed a more wide-ranging transfer audit to use as a planning guide for promoting PDL/training transfer. In this model,
there is a range of factors and sub factors considered important for transfer (eg., pre-planning, learner characteristics, instructor’s approach, work context) and facilitators, and in addition to acknowledging the importance of the transfer inventory factors, trainers/facilitators can choose supplementary factors pertaining to a specific context. For example, the role of culture, often overlooked in transfer [30][31] is outlined as one of the factors that may need to be incorporated into a programme to make it more meaningful. These two frameworks highlight the importance of the adoption of a coherent and logical approach to promoting transfer in settings.

Adopting a strategic approach highlights the importance of theoretical fidelity. The smorgasbord approach was atheoretical, whereas a strategic approach provides a mechanism for incorporating a range of strategies within a consistent explanatory framework. It recognises that for different contexts, times, task complexities (etc), different strategies can be used, provided there is an adaptation to meet the theoretical integrity of the plan [27] and it provides trainers/facilitators with access to a range of strategies – for example, reflexive low-road transfer can draw upon routine-based learning approaches, whereas, mindful high-road transfer involves abstraction and connections of learning activities. A novel approach that has significant promise for professional learning and communities of learners is the work of Schwartz, Bransford, and Sears [32] who use gestalt and cognitive theory to develop strategies to promote preparation for future learning. It is their contention that a schema that educates the learner to locate new information, use resources and manage invention of new ideas within a problem-solving approach for later use is a more effective transfer approach.

Effectiveness of transfer has indeed commanded significant attention in terms of the rates of success. There has been on-going discussion about low rates of transfer – for example, Saks and Belcourt’s [33] indicated that 38% of training was not transferred and Clarke’s [34] survey of professional learning studies noted much lower than expected transfer occurred. Overall however, little has been researched about what has been transferred and the causes of the low incidence [22] but it can be postulated that with increased clarity of criterion issues, improved effective coherent theory-practice linked strategies and use of evidenced-based approaches, this will improve [35][36]. The incorporation of evaluation frameworks following PDL/training to identify outcomes would be useful as well to identify successful strategies of transfer. For example, Kirkpatrick and Kirkpatrick [37] training evaluation model, and the modified version for the professional learning of teachers developed by Guskey [38], have been outlined as a means of identifying successful approaches.

The importance of enhancers/barriers interacting within the contextual factors have been identified as a crucial consideration in many of the key reviews of ToT [25]. Some estimates [39] of the relative importance of these roles/contexts has also occurred, but few studies have investigated the trainers’ role, knowledge of transfer and use of strategies. Indeed, some commentators have signalled a concern about the trainers’ contribution to transfer. For example, Berry [40] noted that trainers/facilitators often have limited knowledge of theory and strategies reducing the potency of ToT. In addition to this, Cheng and Ho [41] have noted that many use a trial and error method for locating strategies and overlook a strategic approach whilst Burke and Berthelsen [42] identified that websites/light-weight practitioner journals are preferred over research findings detailed in academic and scholarly journals. Ford and Blume [43], in acknowledging such practices, have urged trainers to assume an overall theory/practice approach utilising the research findings and evidence-based practices.

In acknowledging the lack of data about the TEs role and understanding of ToT, this current exploratory study has been undertaken to identify what is known about their knowledge and use of ToT strategies in preparing the trainee teacher for the classroom practice in New Zealand and Samoa. It was designed to assess operational ToT knowledge and strategy use in a university setting and clarify what was currently used to promote trainee teacher knowledge and skills for student teacher classroom practice. It was considered important to undertake this study to identify what knowledge was foundational to TEs’ practice in the two settings and then, in relation to the current ToT knowledge and strategies, compare practice to what is known about ToT.

2 METHODOLOGY

This was a small-scale gloclally-oriented exploratory study accessing data from TEs at a New Zealand and Samoan university and relating the findings to international literature. The purpose was to consider the local practices with what was known about ToT and thereby provide a broadened practice base. It was convenient to use these two universities as the researchers were employees and therefore access could be readily attained. Both universities had teacher preparation programmes of
either 1, 2 or 3 years which included teaching experiences in local schools. Ethical guidelines of both universities were used ensuring the research and anonymity, confidentiality, right of withdrawal, and the intention to publish were outlined to participants. A purposeful sampling approach was employed to identify 15 females and 1 male TE who had at least 6 years in the role, a teaching qualification and a Master’s degree. The participants were recruited from the early childhood-primary-secondary divisions of the teacher training programmes and a semi-structured interview of 20 to 40 minutes was used to gather the data. The following six open-ended questions provided the basis of the interview, but at times, supplementary questions were asked.

- What is your understanding of lecturer’s strategies that promote student teachers’ application of ideas during teaching experience?
- What is transfer of training? Related to above question 1 if it was unknown
- What strategies/approaches do you use to promote the application of skills, knowledge and practices of student teachers when they are on teaching experience?
- Where did you learn about these strategies?
- How do you know if the ideas are implemented?
- Can you identify barriers preventing student teachers’ implementation of ideas during teaching experience?

Once the data was transcribed, themes were identified using a thematic analysis approach [44]. Codes were then identified and narrative data was linked as evidence for each of these themes. To ensure trustworthiness, the following procedures were adopted:

- Relating the data to the researchers’ academic, experiential and research backgrounds, both were ex-teachers, and involved in teaching experience at the two universities;
- Use of well-established research methods - face-to-face interviewing and thematic analysis;
- Cross-checking of the coding via independent checking by both researchers.
- Employment of a range of volunteer expert TE informants;
- Linking of the research literature with the findings; and;
- Use of descriptive dialogue.

The research was undertaken over a period of 3 months in the two universities.

3 RESULTS

This research was designed to access the knowledge, skills and practices of TEs as it related to TOT practice in preparing trainee teachers for teaching practice. It focussed on uncovering their understanding and importance attached to ToT, their theoretical ToT knowledge, the use of strategies and approaches, knowledge of enhancers and barriers and processes for assessing transfer occurrence. The results presented a conundrum – most TEs understood the importance and its intention and the need for TOT strategies but transfer theories were unknown, few used evidence-based practices or a strategic framework and only a few recognised a range of potential barriers. Everyone relied upon anecdotal observation and/or reporting of transfer rather than more formalised approaches. It was surprising that the findings from both sets of TEs were similar.

3.1 Recognition of importance of TE and key players

The participants’ definition/understanding of TOT was a significant issue to explore and most gave clear indications of it as being a pivotal aspect for professional development. Typical comments were:

- everybody needs to understand that concept, .... that's the whole purpose of our training, able to learn, get the ideas and apply. (Sam1)
- it's ideas they might learn in their coursework and putting them into practice ...... (NZ1)

Several TEs used examples to explain TOT while others used a more technical definition:

- I would model the strategies, some effective strategies that I thought students would find helpful. ..... (NZ8)
Lecturers prepare the students in terms of strategies, pedagogies and content to be applied (Sam2).

Systematic reviews and commentaries about ToT identify significant roles and interactions between these as being important factors. The participants identified the roles of personnel/groups and many identified the teacher trainees, associate teachers, school staff members and principals as key personnel. But only two participants identified the TE as being pivotal. A few TEs commented upon the importance of the roles of people not directly involved in the teaching programmes such as administrators, programme designers, ministry officials, community members and families of the student teachers.

It includes the TEs, the students, it also includes their teacher mentors or associate teachers, the principals and wider staff members. (NZ1)

I think first most important person is the student. (Sam5)

Important are the program designers, the people who say this is the structure of the course ... placing students in a large lecture theatre to learn for instance. (NZ2)

3.2 Absence of research-theory-practice relationship

The participants had an atheoretical understanding of ToT as no one could identify any of the associated theories. There was a 'smorgasbord-selection' of tactics rather than identified research-driven strategies. Never-the-less, although a research, theory and practice relationship was not evident, several NZ teacher educators made some pertinent comments about related concepts/theories such as situated learning, approximation of practice, reinforcement theory, modelling, reflection and the need for support.

it's a fusion of a lot of theories. (Sam1)

The underlying principle ... is the notion of being supported. (Sam3)

The approaches adopted by the participants did not arise from knowledge of ToT theories. Some linked the strategies they used for transfer to learning that emphasised retention, implementation, sustainability, active learning, relevancy and promoting general learning conditions. High-leverage evidence-based ToT approaches and associated theories were not indicated. One participant identified a motivational strategic approach to assist with the incorporation of the learning into practice.

The following demonstrates the range of responses in relation to what guided their practice:

....hands on experiences ... with a lot of group work, peer work, practical... (Sam1)

I do a lot of work around [simulating] professional learning communities .... they practice a lot of the skills ... I use a case method ... work very collaboratively. (NZ10)

My 5 ideas are: win their hearts (e.g., make a personal connection), win their minds (e.g., give them a rational), support them with examples (e.g., use modelling), make sure they have personal ownership (e.g., ample opportunity to discuss) and accountability (e.g. tasks and assignments). (NZ7)

Although some could provide a theoretical/conceptual framework that assisted them to develop approaches for ToT, most recognised their personal experiences from teaching and lecturing as being significant factors that influenced their choice of approach.

An accumulation of experiences, like, I've been a teacher, ... a teacher educator, .... done a lot of reading, and ... a lot of observation ... so I can put all those things together. (NZ1)

...my training as a teacher, during professional development. (Sam6)

3.3 Unfamiliarity of ToT outcome literature and evaluation processes

Mostly, the participants were unaware of the ToT outcome literature, although a couple of the respondents indicated that there were difficulties that could prevent implementation and the literature indicated that rates of transfer were low. Some recognised that there were barriers to successful transfer.

.....it's not really effective ...... when they go out to the workplace, it's not really happening.. (Sam3)
Literature [indicates it is mostly] ...... ineffective ...... tends to have a lot of power issues, students will often be trying very hard to please their associate teacher .... to get a good report...... (NZ2)

When the participants were questioned about how the occurrence of transfer and its impact were assessed with their student teachers, a range of responses were given. The observation visit to the classroom by the TE provided them with some indications as did talking to the classroom students, assessing the classroom based assignments and informal contacts via email and discussions back at the university. Systematic evaluation frameworks were not used. Typical responses to assessing the occurrence of the transfer included:

.....you observe them, secondly it is what they record in their teaching experience folders, the other is the debrief. (NZ2)

I will find out when I actually go supervise them, assess their lesson … ..their display, and get the feedback from the associate teacher****** (Sam4)

I talk to the children in the classroom. ..... (Sam5)

3.4 A range of Tot barriers identified

It was evident to most of the TEs that there was a range of barriers that could prevent or thwart transfer. However, the recognition of barriers by the participants was not related to the need to take any preventative actions, mainly because the locus of control was considered beyond the TEs immediate jurisdiction. The barriers identified included student teacher understanding, class/school resistances (e.g., not liking change) and physical arrangements (e.g., lack of resources), associate teacher and others’ opposition to new ideas, lack of associate teacher modelling in the class, the student teachers themselves, the mismatch between the university expectations and classroom reality, and language issues. None of the participants discussed the importance of the anticipation of barriers or the need to develop plans to prevent barriers arising.:  

.....the associate teacher.....saying “oh no this isn't appropriate here”, or “I've never done that here.” (NZ7)

.....student teacher lack of understanding of the content… ....(Sam3)

Student teachers … ..worried about their classroom management, and so that's one of the barriers of implementation. (NZ3)

.....The people who are in the field, or support from me, if I'm not there to support them or mentor them … ..it can be a barrier. (Sam3)

Language was considered as a barrier by two of the Samoan TEs. Often a mixture of English and Samoan is used in the Samoan university and school settings and if student teachers were unable to understand English, transfer could be problematic.

[The English language] makes it really hard for the student teachers … ..so that it makes a bit of a difficulty .... ..to get across their ideas, and strategies. (Sam5)

Relationships issues in the Samoan context were also considered as a threat to effective transfer.

If lack of support from the principal, then it won’t happen .... . I've had feedback from my students that support is not always the case. (Sam1)

The students sometimes don’t have support or good relationships with the principal, associate teacher, (etc) which doesn’t help. (Sam5)

This research study was concerned with the knowledge and skills of TEs in preparing student teachers for the classroom practice. All the TEs were familiar with the concept of ToT and its importance and could identify the key players in the transfer process. ToT theory knowledge was minimal and many based their transfer approach upon related learning theories/concepts which provided them with a source for their transfer strategies. Transfer research literature was not known by the TEs but identification of barriers was identified from their experiences. Systematic approach to transfer measurement and evaluation were not indicated. It was clear that there were many gaps in knowledge and a skilled approach to transfer was not apparent. One TE noted after the interview:
I think, people need to know the importance of ToT, the importance of not only learning the ideas but at the same time how to transfer, ...... there needs to be some workshops and maybe more research in this area, so that people are aware of the importance...... (Sam1)

This was not a comparative study but did draw upon the views of TE in NZ and Samoa – surprisingly, the findings clearly indicated a high level of agreement, except it was noted that issues of language and hierarchy in Samoa could impede ToT.

4 CONCLUSIONS

This research gathered feedback from New Zealand and Samoan TEs in relation to their understanding of ToT and processes they used to prepare and facilitate student teacher implementation of knowledge and skills during teaching experience. Little research had been undertaken on how university lecturers prepare their students for professional practice and there was minimal information concerning their knowledge and use of transfer strategies. In this study, all the participants understood the meaning and significance of transfer and could identify specific strategies they used with the student teachers to promote transfer but these approaches were not conceptualised as part of a ToT strategic framework and were utilised in a somewhat ad hoc manner, lacking a strategic approach. As well as enablers, some barriers were readily identified but little was known about the theories of transfer, its research base or outcome literature. It was not an evidence-based approach, but more of a tactical surface based orientation and understanding of ToT. It is proposed that if TEs could draw upon the ToT literature utilising a ToT strategic framework, the student-teacher transfer outcomes could be improved. Refining the TEs understanding of the complex nature of ToT, promoting adaptive practice approaches to facilitate transfer and the need for a rethink on how to generate a culture of transfer change are keys to facilitating improved transfer outcomes of student-teachers.

The TEs revealed misconceptions and partial understanding about ToT. This is consistent with the findings of Berry [40] and the reported lack of understanding of the evidence-based research. Although ToT was recognised as being important, this was not accompanied by a knowledge of the theoretical background, a range of evidence-based strategies or barriers and a strategic framework to plan for ToT. The term ToT was less known than ToL and, indeed, the former was reported by some as more aligned with technicist behavioural training. In the past, ToT has frequently been associated with the human resource management field and psychology - education has often used the term ToL. In more recent times however, training has ‘come in from the cold’ and assumed more respectability with adoption of cognitive approaches and a relative diminution of the behaviouristic emphasis. This is noted in the work of McDonald [24]. Professional development and learning models have also laboured with misconceptions about its intention as learning to transfer was not often the focus was on knowledge, skills and attitudes [1]. A reconceptualization of the need for transfer (of training) is therefore evident in professional learning (and of course other training programmes).

The complex and multi-dimensional nature of ToT has thwarted its adoption. How it is best conceptualised, the varying theoretical perspectives and types of transfer, the need for a pre-, during and post- transfer orientation, how best assessed and evaluated and the potential of barriers have all contributed to misinterpretations and stultified its practice. Furthermore, TEs in a university are from a range of disciplines and not necessarily acquired an educational psychology specialisation. Unless these educators have had opportunities to become accomplished in ToT, it is likely that they will have an incomplete knowledge and uncertain practices [49]. Indeed, it is not surprising then that many adopt a ‘train and hop’ approach. This research has reiterated the need to acknowledge the importance of ToT in university programmes and promote opportunities for TEs to gain the necessary knowledge and expertise.

Apart from acknowledging the applicability of the concept of ToT and the importance of it for university-based PDL, there is a range of other considerations that can assist the TE to enhance their approach. The adoption of a strategic approach would provide a systematic framework for the use of strategies. Daffron and North’s [22] praxis structure (with the emphasis on professional learning contexts including teacher contexts) provides an outline of how to use a ToT strategic practice and gives examples of strategies within their integrated model of 7 key components. Scheeler et al. [46] also provides suggestions for teacher educators regarding how to promote generalisation and maintenance during pre- and post-course times which facilitates cuing and mastery of specific skills and thereby promotes ToT. Clinical teaching approaches would best suit this approach but as universities move toward large-lecture teaching contexts it becomes somewhat problematic. The
teaching of high-leverage practices across the university programmes could assist with this however and consistently link the university teachings to the realities of the student-teacher classroom practice [41], [46]. In New Zealand there has been a number of high leverage approaches developed to promote culturally responsive teaching within an effective relational, social and cultural framework— for example, the research of Bishop and Merryman [47] identified a ‘teaching profile’ that specified efficacious practices to be adopted when working with Maori students and Hunter and Anthony [48] (2011) stressed the importance of participation and communication styles when teaching mathematics to Pasifika students. Undoubtedly, the teaching of relatively simple specific ideas can be modelled in the university settings and receive endorsement by the associate teacher and university personnel, but more complex ideas will need a principled approach and the associate teacher, student-teacher and university TEs will need to work as a close team to ensure adaptations and modifications are made to meet the specific classroom settings. To enhance this, the TE could best assist the student-teacher to plan for the unknown by adopting the preparation for future learning transfer approach. TEs can adopt such models and by using transfer activities provide a principled means of impacting student-teachers upfront prior to the teaching practice. A sound knowledge of ToT practices enables the TE to promote key ideas with the student-teacher who can then more readily implement them in the classroom.

Strengthening the relationships between the TE, student-teacher and the associate teacher will also promote TOT. The difficulty is of course that the workload of the individuals at times prevents this and often results in intangible contacts. Often the authorities consider separate roles of the key players and give minimal attention to the need for a more sustained ongoing interactive liaison promoting effective application of teaching practices. Haskell [28] notes that an effective, informed and solid collaborative relationship is necessary for ToT and this also assists with the transfer and overcoming of the creation of (often) unintentional barriers. Sweezie [49] in support of this, noted that a disconnection between key players was a serious barrier and more productive outcomes can be achieved if there is a community of learners which would towards a more unified interactive and collaborative decision-making approach.

If there is an acknowledgement that ToT research and literature can contribute to improving TE’s guidance of student teachers, it is clear from these findings that TEs need to be more aware of the theories and approaches. If university links with the communities are a priority, university programmes need to incorporate rigorous professional development learning for staff to promote their awareness of the principles of transfer and this is especially important for professional training courses. Halpern and Hakel [50] note that there is very little evidence that faculty staff across the disciplines apply the understanding of adult learning, memory and transfer for example and suggests that it is crucial to have such knowledge. He outlines that the science of transfer is already known and can readily be incorporated into programmes. It is noted that there is a substantial body of cognitive science and learning research which is not utilised as the scientific basis for education and quick fixes are more prevalent. They note that the purpose for universities programmes is the transfer of knowledge, skills and attitudes to community settings at some time in the future but this is often overlooked. The psychobabble about learning should be replaced with the science of learning, retention and transfer principles. Combining these principles of learning and transfer with the specific and evidence-based approaches of a transfer inventory [28] and audit [29] would make a powerful impact on improving ToT.

A range of implications arise from this exploratory study. It is evident that additional research is necessary. Qualitative and quantitative inquiries need to be undertaken to broaden the findings and examine in more detail the TE’s processes of working with student-teachers and associate teachers. The views of the other key actors also need to be considered and investigations of their perceptions of what best promotes a transfer climate. Urgent consideration needs to be given to how to effectively prepare TEs to use the science of transfer and learning to promote transfer — they are often operating on approaches linked to their own experience and not utilising the research and evidence-based findings. Universities need to be encouraged to give all staff an orientation to the science of learning and transfer. Is there a rigidly of thinking associated with TOT at the higher levels of management in the universities which limits approaches and prevents TEs from widening their scope of understanding and chances for effective transfer?

The purpose of this small-scale study was to identify what understandings TEs have about ToT and the strategies they employ to facilitate student-teacher application of ideas and skills in the classroom. Mostly, TEs did not have knowledge and practices drawn from the ToT theories or evidenced-based literature and approaches centred around their experiences and the knowledge they had about other
educational theories and practices. Unquestionably, some transfer does occur but this could be enhanced if TEs were aware of the transfer literature and practices arising from the science of learning and transfer. Furthermore, the findings did however uncover some current practices that were valuable and incorporating these into the ToT transfer approach would be beneficial. Never-the-less, this research has identified an issue of significance – a professional gap of knowledge and practice which overlooks what we know that works.

REFERENCES


