

# PROFESSIONAL DISTANCE-MENTORING OF BEGINNING DESIGN AND TECHNOLOGY HOME ECONOMICS TEACHERS

---

**M.G. Cooper**

*Edith Cowan University Western Australia*

**J. Williams**

*University of Waikato, New Zealand*

**Isaiah Awidi**

*No current university affiliation*

## ABSTRACT

This paper reports a research project that was conducted in 2009 and 2010 to support new teachers in the areas of Design and Technology and Home Economics. As a result of a retraining program, teachers in these areas were posted to remote schools, and the concern was that the combined difficulties of a new teaching area and a remote location would result in a high attrition rate. A mentoring program was established by linking experienced teachers with these new teachers and facilitating organized communication between them. The nature and frequency of the communication was monitored, resulting in conclusions that the program was beneficial for both the experienced teachers as mentors and the new teachers as mentees.

Highly prized by the mentees were the quality resources they received electronically from their mentors, and this was especially the case for those in the more remote locations. The mentors expressed appreciation at being able to give something back to the profession in terms of supporting these new graduates, and some mentors believed that the process assisted them with their own teaching by providing them with the opportunity to reflect on the problems faced by the mentee.

There were critical times of need for the mentees each school term with weeks one, six, and seven being the weeks that the most contacts were made over the course of the six school-terms of the project. The major topics that were discussed most frequently over the course of the six school-terms of the project were, in order, teaching ideas and strategies, accessing good resources, classroom routines or procedures, assistance with academic content, and behaviour management issues.

Overall, the evaluation of the early support program demonstrated that professional distance-mentoring is an effective way of encouraging and assisting new teachers placed in remote schools, and there is strong evidence that such a program can assist to build teacher confidence and self-efficacy.

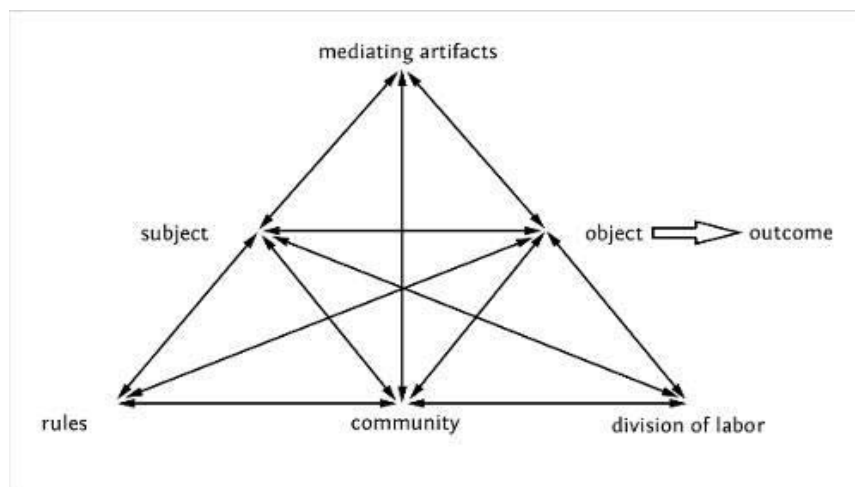
## *Literature Review and Framework*

Internationally and Australia wide, there is a shortage of qualified technology teachers in secondary schools (McKenzie, Kos, Walker, & Hong, 2008; Holderhead, 2013; Williams, 2003), with up to one third reportedly leaving the profession within the first five years (Hartsuyker, 2007). The shortage is particularly acute in areas where the economy is robust, such as in Western Australia where the mining industry provides numerous better-paid employment options for graduates in these fields. The skill set of technology teachers is aligned with many of the personnel needs of the mining industry such as communication, management and organizational skills.

There is evidence that professional induction programs and targeted mentoring can increase the retention rate of early career teachers (McConney & Maor, 2009; Friedrichsen, Chival & Teuscher, 2007; Rice, 2007), and in fact induce teachers to stay longer in the profession (Hartsuyker, 2007; Martin, 2006). Although this research was not longitudinal and so could not lead to judgements about teacher retention, the significance of targeted mentoring provided the structure and rationale for this research.

In the conception of the project it was found that Activity Theory was a useful frame. Activity Theory (Engstrom, 1999) is closely associated with a sociocultural perspective of communities of practice and is therefore a useful approach for examining how the communities of new teachers and experienced teachers could interact through information and communication technologies as mediating tools, to produce outcomes which resulted in the resolution of issues for the new teachers. This can be represented as follows in Figure 1.

**Figure 1: Model of Activity Theory, adapted from Engstrom (1999)**



In interpreting this model for the context of this study, the elements can be understood as follows:

- The subject is the new teachers,
- The community consists of the experienced teachers, who interact in their community according to rules and divisions of labour,
- The mediating artefacts are the ICTs through which the subject and the community interact, and
- The outcome is the resolution of issues for the new teachers and in the longer term their retention in the profession.

### ***The Project***

A partnership between the School of Education at Edith Cowan University and the Department of Education and Training in Western Australia (DET) has resulted in the development of innovative programs aimed at addressing the shortage of teachers in critical areas. One of these initiatives began in 2007 when ECU introduced special courses, designed with DET, to train Design and Technology teachers, and in 2008 extended this to include Home Economics teachers. Specific education and experience prerequisites enable students in these courses to fast track through a Bachelor of Education degree, qualifying them to teach in years 8-10 in their areas of specialisation. However, research on similar retraining initiatives in NSW found that while participants successfully completed the course, they experienced difficulties in the first year of teaching in a new area, including those who were experienced secondary school teachers (Watson, Steele, Vozzo, & Aubusson, 2007). In response to the need to support such teachers in their first years of teaching, there have been initiatives to provide professional mentoring to ease the transition to teaching and to reduce attrition.

Reducing attrition can have significant short-term and long-term cost savings and impact on staffing satisfaction (Riley, 2008).

With the research by Watson et al. in mind, a pilot professional early support and mentoring program for retraining Design and Technology and Home Economics teachers in DET schools in Western Australia was designed. This involved a tailored mentoring program that was specifically intended for teachers undergoing retraining to teach in Design and Technology and Home Economics. The program was grounded in a focus on the community of teachers, and how mediation through a range of tools within the community could lead to an outcome of successful professional relationships (Figure 1). It had the following goals:

- increase the number of Design and Technology and Home Economics teachers in WA;
- reduce teacher attrition in these areas;
- build teacher confidence and self-efficacy for teaching in these areas;
- enhance teacher satisfaction through appropriate support; and
- save costs.

These goals led to a focus in this research on the following questions.

To address the goal of teacher confidence and self-efficacy:

- To what extent has the mentoring project increased the confidence and self-efficacy of the new teachers?

To address the goal of effective support:

- What forms of professional mentoring support helped them to do this successfully?

To address the goal of teacher satisfaction and possible teacher attrition:

- What were the main needs of the new teachers?

Moreover, this early support program was to involve distance-mentoring because the students involved would be placed in country schools in Western Australia precluding the possibility of regular face-to-face contact. Ormond (2011), describing a similar project undertaken with new mathematics and science teachers, defines distance mentoring as *assistance relying mostly on email and telephone contact; and in most cases provided at mutually convenient times by a mentor teacher who is not teaching at the mentee's school* (p. 54) and this definition describes well the process that was undertaken in this current project.

## METHOD

During the first semester of 2009, 18 experienced teachers were recruited as mentors from two respective professional teachers' associations: Home Economics Institute of Australia (WA) and the Design and Technology Teachers Association. These mentors participated in a one-day training program on: the principles of mentoring in an education context; support sources; area-specific issues and recent developments in occupational safety and health. These mentors were then matched with new teachers (mentees) in their teaching area and were requested to have regular, at least fortnightly, contact with their mentee teachers. These beginning teachers had received scholarships from the Department of Education and Training to study at ECU and were thus obliged to participate in the mentoring in their first year of teaching in a government school. However, their participation in the research aspect of the project was voluntary and subject to the usual ethical requirements of anonymity and freedom to withdraw. Over the course of their involvement in the project, mentors and mentees kept a record of interactions using an instrument provided by the research team. This record was to be submitted electronically to the researchers at the end of each school term.

The major instrument used to collect data enabled the respondent to detail the date of the interaction, the mode of interaction (phone, email, face-to-face) and the time involved in the interaction. Additionally, the instrument had a matrix (hereafter referred to as the interaction matrix) in which the

respondent could indicate which topics had been discussed and these were broadly divided into two areas – ‘Everyday teaching’ and ‘Bigger issues’. Table 1 details areas covered in this matrix and a sample of a completed interaction-matrix can be seen in Figure 2.

**Table 1: Data collected from the interaction-matrix of the mentor and mentee term reports**

Category	Topics
Everyday teaching	Teaching ideas, approaches, strategies; Assistance with academic content; Planning a topic; Planning a particular lesson; Preparing an assessment; Classroom routines or procedures; Behaviour management strategies; Assessment recording or procedures; Accessing good resources; School administrative procedures; Other*
Bigger issues	Making teaching interesting or relevant; Coping with different ability levels; Long-term goals and issues; Other*

\* Space was provided for respondents to elaborate on the ‘Other’ response

Finally respondents were asked to use this instrument to respond to the following questions:

- In what way do you feel you were most able to assist your mentee?
- Were there any areas in which you felt you were not able to assist your mentee adequately?
- Please describe any particularly *positive aspects* of your mentoring contact during this period of time.
- Please describe any *specific problems* in your mentoring contact for this period of time.
- Please reflect on any issues, problems, or general matters related to the mentoring process.
- Are there any particular issues you would like addressed?

**Figure 2: A sample completed interaction matrix from a mentor report**

Date of mentee/mentor contact	Phone or email? (P/E)	Approx. time involved	Everyday teaching										"Bigger" issues						
			Teaching ideas, approaches, strategies	Assistance with academic content	Planning a topic	Planning a particular lesson	Preparing an assessment	Classroom routines or procedures	Behaviour management strategies	Assessment recording or procedures	Accessing good resources	School administrative processes only	Other*	Making teaching interesting or relevant	Coping with different ability levels	Long-term goals and issues	Other*		
2 Feb 16	email	5 min																	
3 mar 3	e	2 min																	
Mar 9	e	10 mins													*	*	*		
5 Mar 23	fax	30	*		*	*	*												
6 Mar 26	e	5																	
7 Mar 30	e	10													*		*		
8 Mar 31	e	5																	*
9																			
10																			

The program began officially in Term 3 2009 (October) and continued into 2010 when new teachers (mentees) were assigned to the mentors (who remained with the project) for the second year of the project. Over the course of the project reports were received from both mentors and mentees. Additionally, there were also email and phone contact with participants. These were predominantly to encourage the mentees to send in their reports, and occasionally to discuss problems with mentors

and mentees about the mentoring process. These 'incidental' data sources have been included in the qualitative analysis.

### **Data Analysis**

Quantitative data, collected from the matrix of interactions, was entered into EpiData, a freeware program for programmed data entry and data documentation, and then exported to Predictive Analytics Software (PASW). Once in PASW, the analysis required a number of adjustments and calculations:

- The data set was re-coded according to date to allow measurement of trends and distribution of interactions over time.
- New calculated-variables were created to indicate total number of interactions for each category (Teaching ideas and strategies, Assistance with academic content, etc).
- Frequencies were generated to determine:
  - total number of interactions;
  - total and, distribution over time, of interactions (per week and per term); and
  - total time and average time of interactions over the entire project.
- Summaries from the data set were exported to Microsoft Excel to generate charts of the data.

The above process was repeated for both mentors and mentees, while maintaining the link between mentor and mentee so that both alternative and complementary perspectives could be examined.

The qualitative data from the six open-ended questions were collated into separate documents, one for each question. This data set was then examined iteratively, searching firstly for data supporting the categories collected through the interaction matrix and secondly for emerging themes that may not have been evident through the quantitative analysis.

## **RESULTS**

### **Frequency of Contact**

Over the course of the project a combined total of 100 mentor and mentee reports were received. Of these, 69 were received from mentors and 31 from mentees. The maximum expected number of reports based on one per term from each mentor and one per term for each mentee was 79 for mentors and 90 for mentees (taking into account mentor and mentee attrition). This equates to a return rate of 87 per cent for mentors and 34 per cent for mentees. These figures are based on the number of mentors and mentees during each of the six school terms of the project. The following Table 2 shows the number of reports received from mentors and mentees over time.

**Table 2: Mentor and mentee report returns by year and term.**

	2009 T3	2009 T4	2010 T1	2010 T2	2010 T3	2010 T4
Mentor reports	18	12	15	11	5	8
Mentee reports	11	0	8	9	1	2

The return rate for mentees was low despite the research team's efforts to encourage the completion of reports by regular emails and phone contacts. Although participation in the research component was entirely voluntary and participants were able to withdraw at any time, it was a condition of their scholarship to ECU that they were involved in the mentoring aspect of the program in their first year of teaching. This meant the main incentive for their participation was the help they could receive from their mentor, and this lack of choice may have affected their propensity to submit regular reports. Mentors, on the other hand, were volunteers but were also paid for their time so it follows that detailed reports were generally forthcoming from them. The mentee reports are less substantial and

evidential than those made from the mentor reports due to the paucity of data from the mentees. Therefore, greater reliance was placed upon the mentor reports in the conclusions drawn by the research team.

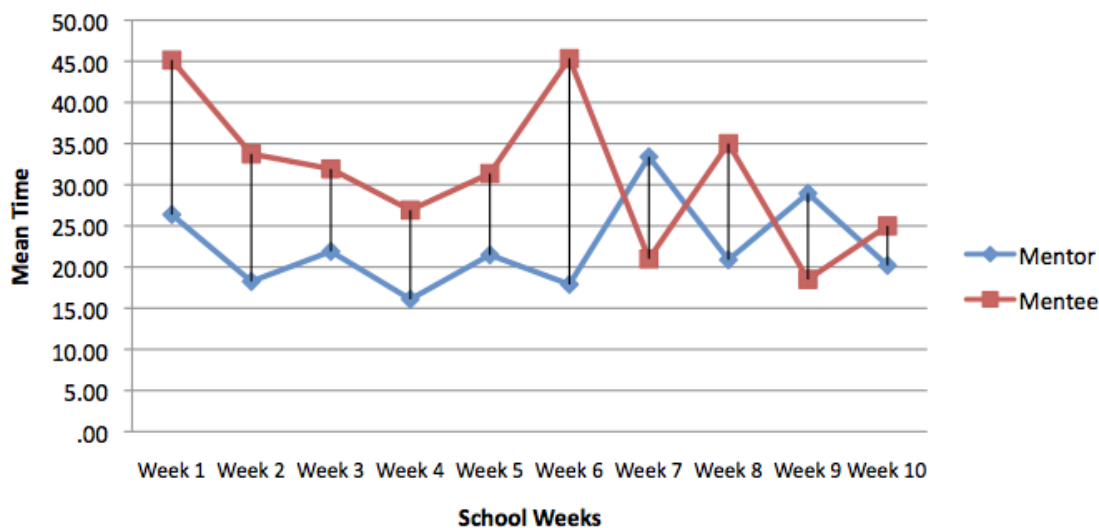
### ***Pattern and Time of Contacts***

The mean time spent each week in contact between mentor and mentees was calculated and then plotted to determine whether there was any pattern. The resultant graph can be seen in Figure 3. Peak contact times were observed early in the term and then again around half way through the term, and this may indicate key points of mentee need. In their Term 4 comments, some mentors noted that their mentees were more confident and were managing better and so less contact was made.

There is a large disparity between the amount of contact time reported by mentees (in red) and the mentors (in blue). It is difficult to explain these differences except to emphasise that the mentor data is more reliable because more data was collected from them on a regular basis. Furthermore, there is some evidence in the raw data that mentees were more likely to fill in their interaction-matrices by memory and less systematically than the mentors. This may mean, due to their reliance on memory, that the mentees exaggerated the amount of time spent in communication. The converse is also the case in some instances, as reflected in this mentor’s comment:

*In reality the mentoring process has taken longer than I have actually recorded, as some of the issues needed me to think and plan a response. I also have done some research to find answers and resources that my mentee would benefit from.*

**Figure 3: Weekly mean contact time between mentors and mentees**



The average time spent on an individual contact over the course of the project was reported by mentors as 22 minutes and by mentees as 33 minutes. Working on the assumption that the mentor data is most accurate there were *at least* 8750 minutes (~146 hours) of contact between mentors and mentees over the course of the project. Seventy percent of all contacts were 15 minutes or less in length and the modal time for a contact was 10 minutes.

### ***Mode of Contact***

Table 3 below illustrates the frequency of each of the modes of contact between mentors and mentees. The vast majority of contacts were by email. This was probably because making contact via phone or other means was more problematic.

On seven occasions mentors and mentees managed to visit face to face, and many of those who weren’t able to recognized the value in doing so: *I would love to jump on a plane and sit with K and help her plan.* In fact, both mentors and mentees indicated that not being able to meet face to face was a

weakness of the program. The pairs who were able to meet during school holidays felt that the time together was very useful.

*L did come and visit me in the Term 3 holidays and we accomplished a lot in the 3 hours we had together.*

The one pair who were in close proximity and could visit regularly recognised that this was a real advantage.

**Table 3: Modes of contact as reported by mentors and mentee**

Mode of Contact	Mentors	Mentees	Total
Email	270 (64 %)	85 (63 %)	355 (63 %)
Phone	95 (22 %)	40 (30 %)	135 (24 %)
Other	43 (10 %)	10 (7 %)	53 (10 %)
Visit	9 (2 %)	0 (0 %)	9 (2 %)
Post	8 (2 %)	0 (0 %)	8 (1 %)
Total	425	135	560

Table 3 indicates that the most common form of contact was email. As one mentor reflected:

*Being able to keep in contact through email was more important than the phone in this instance. The phone will simply ring if not able to answer... whereas email will sit in the inbox until G finds the appropriate time to reply ... which he did well this term.*

Six mentees commented that they appreciated the support in the form of electronic resources and documentation. This type of assistance can be delivered via email and in this case was one of the major ways that the mentor supported their mentee. Those who did use the phone more frequently valued the opportunities that this provided for conversation.

*It was great to talk to someone who has been in Home Economics for years and years. L had some good ideas and I have implemented these in my classroom (Behaviour management). I had a bad week in the middle of Term 3 and it was really nice to ring up L, explain what happened and have a non-judgmental/biased chat about what happened and what I could do in the same situation in the future.*

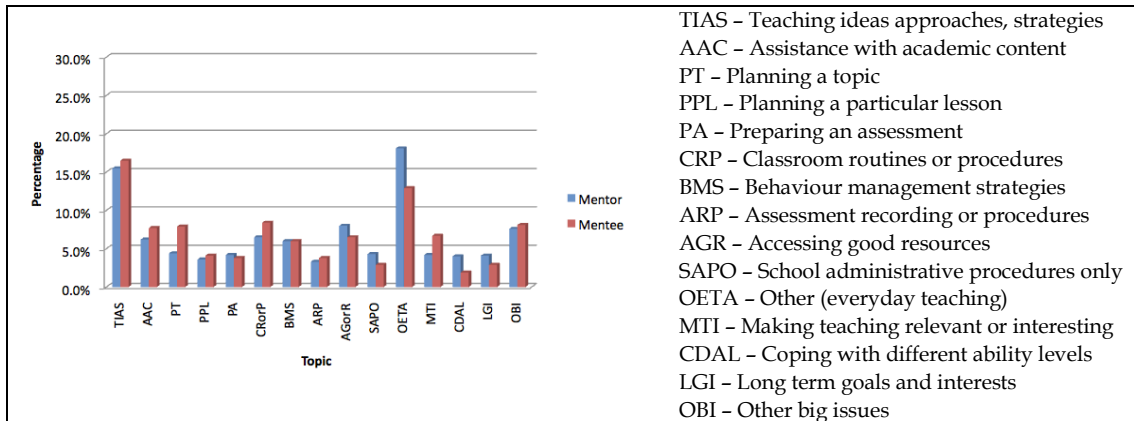
### **Topic of Interactions**

The chart in Figure 4 illustrates the topics discussed as a percentage of the total interactions over the entire project as reported by both mentees and mentors. Clearly the most common topics for discussion were: teaching ideas approaches and strategies, and other topics related to everyday teaching. Figure 5 shows the same information but with mentors and mentees combined so as to produce a single percentage for each topic and then ranked from highest to lowest. The top two topics were the same as above, and the top seven with a frequency of over 5 per cent, (ranked in order) were:

- other every day teaching ideas;
- teaching ideas and strategies;
- other big issues;
- accessing good resources;
- classroom routines or procedures;
- assistance with academic content; and
- behaviour management issues.

This list illustrates that the beginning teacher’s main concern is the day-to-day teaching of the lessons in their classes. This finding gives clear guidance for those preparing student teachers for their first year in the field. Specific teaching ideas for lessons, strategies and good resources are key areas that, if addressed, may help smooth the initial year of teaching.

**Figure 4: Topics discussed by mentors and mentees over the entire project.**



**Figure 5: Ranked combined topics discussed over the entire project**

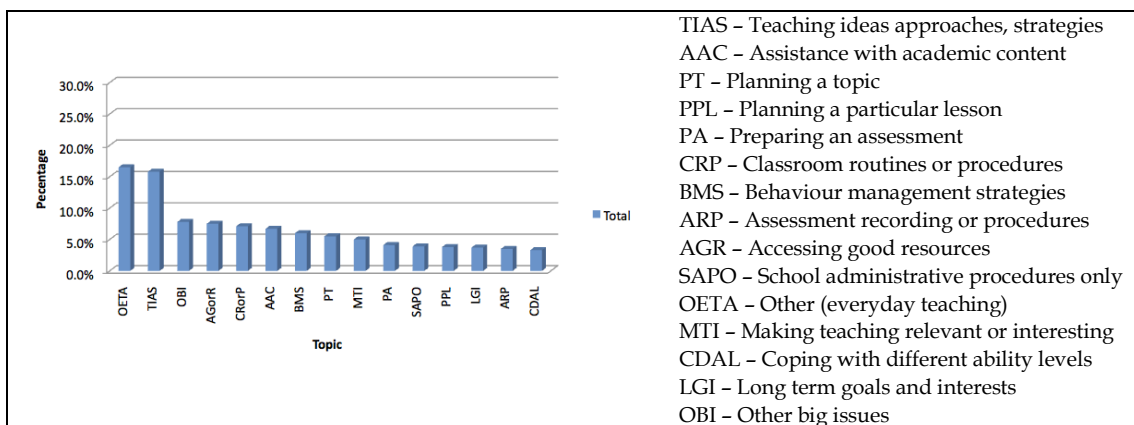


Figure 6 (below) was created to illustrate changes in areas discussed over the course of a year of mentoring. This graph shows, for combined mentor and mentee data, the difference in topic-percentages from Term 1 2010 to Term 3 2010. Term 4 wasn’t included in the data set because the number of returns from mentees and mentors was low. Once again the significance of ‘teaching ideas and strategies’ predominates. It was a major topic in Term 1 and the level of discussion around this topic increased over the course of the year. ‘Making teaching interesting or relevant’ and ‘classroom routines’ also showed gains over the course of the year. Finally, ‘accessing good resources’ and ‘coping with different ability’ levels also increased. The latter, ‘coping with different ability levels’, is an encouraging sign as it suggests that by this stage of the year new teachers were beginning to see this as an important factor.

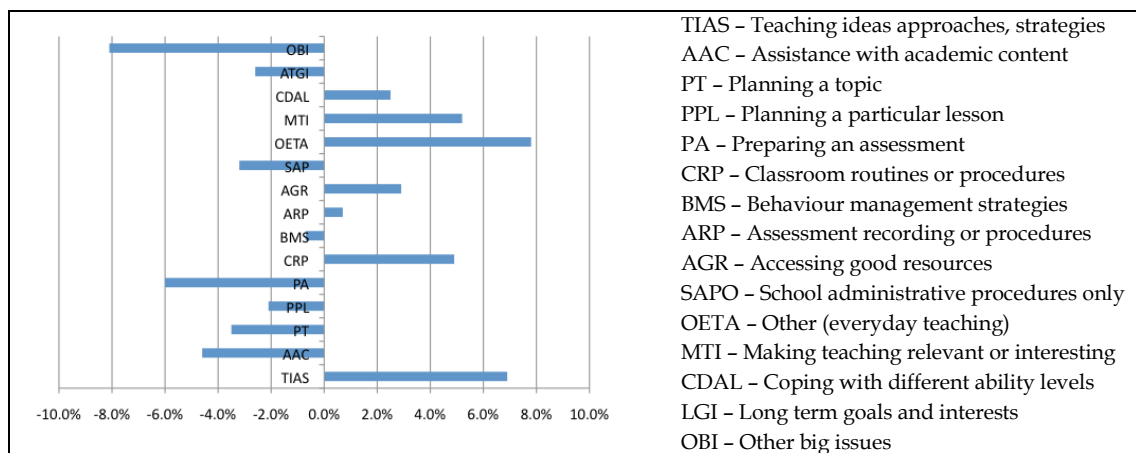
The areas that declined over the course of the year were ‘other big issues’, ‘preparing an assessment’, ‘assistance with academic content’, ‘planning a topic’, ‘school administrative procedures’ and ‘long term issues’. Most of these are not surprising. Several mentors specifically commented that their mentees became more confident over time and needed less mentoring. For example, from two mentors:

*My role has become more of a resource/reflector and someone able to discuss any issues as they arise.*

*As the term continued I was able to take on more of a leadership role and less of a mentor’s role. Again this was as a result of increasing confidence of mentee.*



**Figure 6: Changes in topics discussed from Term 1 2010 to Term 3 2010**



The clear message from these charts is the pre-eminence of mentee need for teaching ideas and strategies. This is reinforced by the comments both mentors and mentees supplied in their reports, specifically about project ideas, student motivation, group dynamics and teaching resources. One mentor commented that:

*J has a busy load; he seems to be well organised and using plenty of initiative to develop the classroom; not much support for him provided in terms of curriculum documentation; as a new graduate he has far too much to deal with; I think it is highly inappropriate to 'dump' the work load he has onto him; he is coping but it will be a difficult year for him in terms of learning new content.*

The elaborations both mentors and mentees provided about 'other big issues' were diverse, and it is impressive that mentors were able to provide support across this range. For example, one mentee commented:

*Having another teacher who is familiar with the issues makes communication much easier and as a result P's advice was right on the money. This provided a sense of relief by highlighting that my problems/issues were not unique or necessarily of my making. P's advice and insights have been given added significance because he has been able to point out how they have been developed through the same types of experiences/issues/problems that I've experienced.*

Specific issues noted by at least 50 per cent of mentees and mentors included safety in the workshop context, course promotion, timetabling and professional standards and performance. Issues related to budgeting were also commonly cited. For example, from two mentors:

*C was concerned about how the budgets were set per subject area, and due to his limited experience he felt unsure of what was expected. He also feels he has insufficient funding to complete the courses, to a satisfactory level.*

*G is struggling to cope with tight budget constraints, and this affects the projects he is able to offer his students and in turn this affects his designing and making meaningful and reasonable projects. G is working in a workshop with damaged, dilapidated and outdated tools and equipment. There is also inadequate storage for projects and materials. G and I discussed ways to supplement the materials that the students have available for them to use to design and make projects by looking at manufacturers that generate useful size off cuts of materials in class size lots.*

The difficult load provided to new teachers by some schools was an issue. It could be anticipated that any new teacher would perceive their load as difficult in their first year of teaching, but this issue was raised by nine of the very experienced mentors, so it seems that for these mentees it was a significant issue. For example another mentor commented:

*New teachers need someone with influence and authority to mediate or go into bat on their behalf. At times I felt like I needed to contact the Head of Learning Area or Principal to discuss O's situation. If we are to keep graduates in teaching we need to ensure they are not just soaking up all the holes and unpopular classes in the timetable and give them some classes they are going to really love and enjoy teaching.*

Three of the mentees were teaching out of their major area of training, and they required extra support for those unfamiliar areas.

In many instances support for mentees seemed to extend well beyond their immediate classroom needs into personal issues within the school context and five of the mentees specifically mentioned being appreciative of this support. For example, one mentee commented:

*I needed someone to talk to about some of the frustrations I was feeling with regards to internal politics, inconsistencies, that I was a victim of. I did not like the way I was being managed and needed someone to talk to. E provided the relief, understanding and wisdom that I was in need of at a stage when I was ready to blow a fuse.*

### **Mentor Assistance**

A large majority of the mentors (14) felt that they had been able to assist with the issues raised by their mentee, although some expressed frustration that they did not receive feedback from their mentees regarding how useful this assistance had been. Mentors who did express some inadequacy explained it in terms of poor email communication skills, inadequate time for communication, or their mentee needs being in areas that were difficult to address from a distance such as lesson observation and demonstration, housing, run down facilities and equipment, time management and marking. Some examples of mentors' comments included:

*The teaching conditions in school X would not be conducive to any form of teaching, given the student population, absenteeism etc. A difficult task to an experienced teacher, nigh on impossible for a beginning teacher".*

*I was unable to offer direct assistance on some queries and exhausted my own resources in an attempt to provide assistance specifically with help with Automotive Course writing.*

The ways in which mentors felt they were most able to support their mentees included the following.

- Listening ears – Chance to off-load to someone outside the school. *I was available for him to verbalise his thoughts and act as a sounding board – reporting back what I thought he was saying and allowing him to reflect by asking him questions that related to each topic.*
- Non-judgmental support - *Being non-judgmental allowed my mentee to be able to be reflective and see what he could do better.*
- Planning courses/lessons - curriculum help, setting aims and objectives for lessons - *I have been able to show him how to put a methodical and systematic lesson plan together.*
- Parent contact ideas.
- Behaviour management strategies, student disengagement.
- Moral support – motivation to do what they can do.
- Forwarding teaching resources to mentees - *I also found that simply through the medium of conversation C seemed settled and confident with the approach. As for the resources ... C was very pleased.*
- General support in understanding the running of a department and understanding classroom compared to whole school matters.
- How to feedback on projects and assessments.
- Performance management.

- Demonstration of how teacher decisions (good or bad) made early in the semester produced results in the long term.
- Helping to understand the duty of care and the process of administration.
- Providing programs of work. Assisting with how Mentees' go about their work.

This general satisfaction with the mentor relationship was explicitly expressed by seven of the mentees. Over half of the mentees that submitted reports indicated that their mentors were approachable, and that the issues that came up were adequately resolved. Five mentees indicated that they particularly appreciated the informed pragmatism of their mentors, based on their years of classroom experience. Instances in which they felt they did not receive adequate assistance were related to resources, program and lesson plans.

Other responses from mentees (six) revealed that they received both emotional and physical support from their mentors. According to the mentees they received emotional support from knowing that there was someone independent to discuss their issues with. One respondent remarked *having a support person to chat to especially after bad day* was the most critical support I received. Having a neutral person outside school who is *constantly available for contact and support* to discuss issues with was very supportive. Another stated *I feel L's greatest help was in providing moral support*.

Mentors' descriptions of the most positive aspects of mentoring related to themselves as much as to the mentees. Helping with student management, building self-confidence, suggesting new strategies, sharing resources and helping new teachers not to feel isolated and become established in their careers were mentioned by a number of mentors. Three mentors mentioned that the experience was good for their own teaching, to be encouraged into discussions about a broad range of educational issues, to build a professional relationship and have input into more than just their own teaching. Being needed by a new teacher was a rewarding new dimension to a number of mentors' sense of professionalism and in some cases it was planned to continue:

*I think we will be able to further develop a relationship outside of the program next year that will be of good value ....I felt that the program has helped to establish this relationship that can now continue to develop in certain areas and will hopefully continue.*

In one case,

*...he was going to leave teaching permanently after his first year experience in a small country town and now he is considering a long period in the occupation. The retention of a staff member in D&T is a strong positive outcome of the program.*

Those who were able to meet their mentees commented on how beneficial this face-to-face interaction was. A number were able to meet because of the proximity of their schools, and others were able to meet during holidays: *the most beneficial aspect of this mentoring role is the 2 hour face to face meeting with T. each holiday.*

### ***Difficulties with the Mentoring Process***

A few mentees did not initially want to be a part of the program implemented by DET (although participation in the research phase was voluntary) , but all those who were initially reticent found it useful over time. One in particular who strongly objected to being obliged to interact with a mentor subsequently developed a strong professional relationship with the mentor, which has continued beyond the program. A few others were initially ambivalent about the program (*there were no problems, and I didn't really feel the need to make contact with my mentor every week*), and some of these were competent teachers in supportive and relatively ideal schools who relied on their mentor less than others. Some mentees felt as though having to make contact with their mentor each week was just another pressure added to the already overwhelming pressure from the school. So comments varied as indicated in the following.

*It was more of a hassle than a help really. It was just another thing I have to worry about.*

*I have enjoyed being part of this process and I hope that one day I would be able to help another beginning teacher in a similar manner.*

A desire to meet their mentees face-to-face was expressed by 11 of the mentors as an issue, and those who did meet stated how valuable the time together was. Some mentors felt that without meeting, the relationship they had with their mentees could only develop to a certain level.

*I felt just phone and email contact was limiting. I feel face to face contact would be better and I wanted to help in the classroom.*

*Would like to have visited to see first-hand his teaching situation.*

*It would be good to meet mentee at the end of the University year, before they head out to their school, so they can put a face to the name & hopefully find that their mentor is approachable in a non-judgmental way.*

Finding common time for contact was the most frequently cited issue by both mentors and mentees. Email worked adequately for some, but many others felt they needed more personal and immediate conversations. With teaching timetables varying each day for both parties, missed phone calls were frustrating and common time was difficult to find.

*Getting time to catch-up and discuss any issues in a formal sense. Most of all of our contact time is after school finishes, and other meetings or follow-up have occurred.*

*...the other issue was setting up a time that we were both available for contact on a consistent basis. Email proved problematic and was somewhat impersonal.*

*...phone contact although immediate is hard to find common time. The biggest problem is allocating enough time to make frequent contact.*

## CONCLUSIONS

Generally speaking, the Early Support Program, as implemented over the 18 months from the middle of 2009 until the end of 2010, was deemed beneficial for both mentors and mentees. The conclusions based on the mentees reports must be viewed with caution, however, because of the low response rate. From the mentees perspective it would definitely be better to begin such a program at the start of the school year, as happened with the group beginning in 2010, rather than in the middle of the year as happened in 2009. Some of the mentees who were initially reluctant to participate did come to value the program and the advice they received from their mentors. For many of the mentees just knowing there was an independent person that they can call upon when needed was considered valuable, however, those mentees that had very supportive staff in their school indicated that they would sometimes prefer to deal with any issues at the school level. Conversely, there were those who particularly appreciated being able to talk to someone outside of the school in order to remove the issues from school politics and personalities. Also highly prized by the mentees were the quality resources they received electronically from their mentors, and this was especially the case for those in the more remote locations.

The mentors expressed appreciation at being able to give something back to the profession in terms of supporting these new graduates, and some mentors believed that the process assisted them with their own teaching by providing them with the opportunity to reflect on the problems faced by the mentee. While the mentors in this project were paid a stipend, the feeling is that many experienced teachers would be happy to mentor new teachers as part of their professional responsibilities.

The data indicated there were critical times of need for the mentees each school term with weeks one, six, and seven being the weeks that the most contacts were made over the course of the six school-terms of the project. This may suggest that rather than expecting a regular fixed time for mentor/mentee contact it may be better to have a more flexible, informal approach that relies on mentee demand. This flexible schedule was confirmed by a number of mentees as preferable. Mentors were undecided as to the best length of time necessary for effective mentoring with some suggesting a full year was not necessary while others felt two years was most appropriate and would allow a richer relationship to develop.

Over the course of the project 63 per cent of all contacts between mentor and mentee were made via email with phone contact at 24 per cent being the second most frequent mode of contact. The

asynchronous nature of email proved a major strength while phone contact requires both parties to be simultaneously available. Face-to-face contact was highly valued but in most cases not a realistic possibility.

The major topics that were discussed most frequently over the course of the six school-terms of the project were, in order, teaching ideas and strategies, accessing good resources, classroom routines or procedures, assistance with academic content, and behaviour management issues. Of these, teaching ideas and strategies was by far the most dominant and reflects the primacy of dealing with day-to-day lesson preparation in the mentees minds. There were 'other' categories, and qualitative data was collected regarding these categories. The most common issue mentioned by mentees in these questions were related to student engagement including catering to different needs, group dynamics and behaviour management.

Overall, the evaluation of the early support program has demonstrated that professional distance-mentoring is an effective way of encouraging and assisting new teachers placed in remote schools. There is strong evidence that such a program can assist to build teacher confidence and self-efficacy; however, a longer-term evaluation would be necessary to determine the impact upon teacher attrition.

## REFERENCES

- Engestrom, Y. (1999). Activity theory and individual and social transformation. In Y. Engestrom, R. Miettinin & R. Punamaki (Eds.), *Perspectives on activity theory* (pp. 19–38). New York, NY: Cambridge University Press.
- Friedrichsen, P., Chival, K., & Teuscher, D. (2007). Strategies and sources of support for beginning teachers of science and mathematics. *School Science and Mathematics, 107* (5) 169 - 181.
- Hartsuyker, L. (Chair). (2007). *Top of the class: Report on the inquiry into teacher education*. (Report of the House of Representatives Standing Committee on Education and Vocational Training Vol 36, 4, April 2011 70). Retrieved from <http://www.aph.gov.au/house/committee/evt/teachereduc/report/fullreport.pdf>
- Holderhead, S. (2013). SA Government scholarships for design and technology teachers in rural schools (March 28). *The Advertiser*. Retrieved from <http://www.adelaidenow.com.au/news/sa-government-scholarships-for-design-and-technology-teachers-in-rural-schools/>
- Martin, G. (2006). *Creating effective mentoring partnerships: Mentor workbook*. Fremantle, WA: Centre for Professional Excellence in Training.
- McConney, A. & Maor, D. (2009). The evaluation of a pilot mentoring program for beginner science and mathematics teachers: summative project evaluation report. Perth: Murdoch University, prepared for the University of Western Australia.
- McKenzie, P., Kos, J., Walker, M., & Hong, J. (2008). *Staff in Australia's schools 2007*. Canberra: DEEWR.
- Ormond, C. (2011). Tailoring mentoring for new mathematics and science teachers: An exploratory study. *Australian Journal of Teacher Education, 36* (4), 53–71.
- Rice, S. (2007). Simply the best: Research on the recruitment and retention of effective teachers. *Teacher (179)* 10-13.
- Riley, P. (2008). Keeping our teachers (2008, January 28). *The Age*, p. 11.
- Watson, K., Steele, F., Vozzo, L., & Aubusson, P. (2007). Changing the subject: Retraining teachers to teach science. *Research in Science Education, 37*, 141-154.
- Williams, P.J. (2003). *The status of technology education in Australia*. Initiatives in technology education - comparative perspectives: Technical foundation of America forum. Gold Coast, Australia, January. <http://teched.vt.edu/ctte/HTML/Research1.html>