

## **Teacher Professional Learning Whilst in Quarantine: A Case Study from China**

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### **Abstract**

Transforming two early education centres in China to incorporate the educational philosophy of Maria Montessori is a huge task. To induct teaching staff into Montessori's philosophy, pedagogy, and curriculum when their past educational experiences have been formed by a rigid, traditional model added to the challenge. To further complicate matters the transformation took place during lockdown due to the COVID-19 pandemic and the staff participated in a completely voluntary capacity whilst in isolation. For this research project the authors collected data through direct observations, surveys, questionnaires, individual teacher interviews, and focus group interviews. How online professional learning for 35 staff members was planned, organised, modified, and undertaken is outlined. Practical and technical issues involved in moving from face-to-face to online teaching are also included. Teachers reported that the professional learning program had prepared them well for when the centres reopened and the children returned.

*Keywords:* China, COVID-19, early childhood education, Montessori, quarantine, teacher professional learning

This article explores the professional learning of early childhood teachers in two preschools in Shandong Province, China. The professional learning program was designed to bring about major and enduring changes to pedagogy and curriculum, and occurred at a time of unique circumstances associated with the coronavirus pandemic in the first half of 2020.

The term “professional development” of teachers is well understood, however in a growing number of countries the term “professional learning” is gaining currency (O’Brien & Jones, 2014) and will be used in this article. The Organisation for Economic Co-Operation and Development [OECD] definition of teacher professional development/learning encapsulates the concepts which have been identified as contributing to successful and effective teacher professional learning:

*Effective professional development is on-going, includes training, practice and feedback, and provides adequate time and follow-up support. Successful programmes involve teachers in learning activities that are similar to ones they will use with their students, and encourage the development of teachers’ learning communities (OECD, 2009).*

### **Literature Review**

The elements of effective teacher professional learning and development have been the focus of considerable research. In a wide-ranging review of the literature on teacher professional development/learning Villegas-Reimers (2003, pp. 119–120) identified the following factors necessary to create a “culture of support” for successful professional learning: collegiality, openness, and trust; opportunities and time for inquiry; teachers learning in context.

In a policy brief on teacher professional development in the USA, Kedzior and Fifield (2004) identified the characteristics of high-quality teacher professional development as including a focus on content, the provision of opportunities for active learning, collaboration with colleagues, and responsiveness to teacher needs. Based on a literature review of effective contexts for teacher professional learning Timperley and colleagues (2007) added an extended time for opportunities to learn and opportunities to process new understanding, the development of a learning culture, and the creation of conditions for distributed leadership.

Little (2012) conceptualised good teacher professional learning as being contextualised, connected to issues of teachers’ practice, encouraging experimentation, collegial and collaborative, and active as opposed to being “episodic, superficial and disconnected from their own teaching interests and recurring problems of practice” (p. 22). To be most effective Harris and Jones (2017) stated that “teachers’ professional learning should be appropriate, timely, targeted and meaningful” (p. 331).

Based on a literature review of effective approaches to teacher professional development Borko et al. (2010) stated that professional development content should be situated in practice, focused on student learning, take place in a collaborative learning environment, and involve teaching practices modelled by the leaders of the professional learning program.

In Turkey, a qualitative study involving elementary school teachers Bayar (2014) found the participating teachers identified the characteristics of effective professional learning as including meeting the teachers’ existing needs, involving teachers in the design and planning

of the activities, and opportunities for active participation (p. 319). These features also were identified in an editorial by Kennedy (2015, p. 1) in the UK.

With specific reference to early childhood education in Australia, Nolan and Molla (2018) conceptualised professional learning as socially situated practice conducted in a specific context. They referred to the four C's of effective professional learning: context, collegiality, criticality, and change.

In a recent review of thirty-five “methodological rigorous studies” of effective professional learning Darling-Hammond et al. (2017, pp. iv-v) identified positive links between effective teacher professional learning, teacher practices and improved student learning outcomes:

1. The learning is content focused and develops specific pedagogies and teaching strategies associated with related curriculum content.
2. Teachers are actively involved in designing and trying out teaching strategies that involve the same style of learning they are designing for their students.
3. Opportunities are provided for teachers to share ideas and collaborate while they create learning communities.
4. Teachers are provided with a clear understanding of what best practices might look like through shared curricular models and the modelling of instruction.
5. Professional learning activities and shared expertise focuses on the individual needs of teachers.
6. The professional learning includes time and space for teachers to reflect, receive input about, and make changes to their teaching practice.
7. There is adequate time for teachers to learn, practice, and implement new strategies that facilitate changes in their practice.

The factors outlined in the seven points identified by Darling-Hammond and colleagues (2017) encapsulate the points made by the authors of previous paragraphs and were used to analyse and structure the professional learning experiences of teachers in two early childhood education centres (ECE) during the first half of 2020.

### **Context of the Study**

When this study commenced in early February 2020, educational institutions in Shandong Province, China, were prevented from opening after the Chinese New Year holiday because of the outbreak of a novel coronavirus in the city of Wuhan. Prior to this, the decision to introduce a Montessori approach to teaching and learning through a one-week professional learning program for teachers in the two ECE centres had been planned. The lockdown meant that teachers were not being paid and the Centre's Director was not receiving any income from fees. Nevertheless, all teachers volunteered to continue to participate in the professional learning program.

For a number of years, the two centres had operated in different areas of the same Chinese city under the ownership of the Director. Each centre had a Principal as well as teachers and carers, and their daily management was relatively independent. For each thirty children the teaching group consisted of three people, a Head Teacher, a General Teacher and a Carer. The children were organised into mixed-age groups from 2.5 to 6 years of age. This situation was different from that which existed in most early childhood centres in China where the number of children in each class group was larger and the children in each class were in the same age group.

The professional learning sessions began online in February and continued until June. The content of the early sessions had been planned but, as the length of time that staff were prevented from meeting face-to-face increased, the range of topics for professional learning grew. At first topics were largely determined by the Director, with input from the two Principals, but over time the specific needs of individuals and groups of staff members were acknowledged, and these needs became the focus of continuing professional learning activities.

In order to appreciate the challenges confronting the professional learning program it is necessary to understand the external and internal forces that were impacting upon early childhood education in China and, more specifically, in the two centres in late 2019 and the early months of 2020.

### **External Factors**

In January 2019, the Communist Party of China Central Committee and the State Council announced that by 2025 preschool education would be available for all children (Zou Shou, China Daily, 2 January 2019). This decree placed considerable pressure on the existing private early childhood centres to conform to a fee structure set by the government, in order for the centres to continue to operate.

At the beginning of 2020, awareness of a novel coronavirus (COVID-19) was recognised by Chinese authorities. The initial centre of the disease, Wuhan, was shut down, as was much of China. On 30 January, the World Health Organisation declared COVID-19 a Public Health Emergency of International Concern, and as a pandemic on 11 March 2020.

### **Internal Factors**

The Director had decided previously that the centres would adopt a modified Montessori approach to ECE, and that it would be necessary to provide professional learning experiences for all teachers in the new pedagogy and curriculum. To induct the teaching staff into Montessori's philosophy, when their past educational experiences had been formed by a rigid, traditional model, provided a major challenge. Because of COVID-19 the government closed access to all educational institutions in China and prevented the gathering of groups of people. This meant that the mode of delivery for the planned professional learning program for the centres' thirty-five staff members had to be modified. Some practical and technical issues involved in moving from face-to-face to online teaching became apparent. An added issue was the level of training and the relative inexperience of many of the teachers. A few teachers were university graduates, but most had undertaken certificate courses or were high school graduates.

### **The Decision to Introduce a Montessori Approach**

Late in 2018 the Director decided that both centres would be re-organised to implement a Montessori approach to teaching and learning. She had attended short-term training programs about progressive approaches to teaching and learning including those of Montessori, Reggio Emilia and Waldorf and she had read widely from the works of John Dewey, Jerome Bruner and others.

The Director wrote:

*At first, I doubted the feasibility of applying any of these approaches in my schools in a city like my hometown, where parents all think education, including early childhood education, is about academic performance. ... I*

*chose the Montessori approach because it gives teachers full practical training to allow them to understand the core of the approach gradually.*

Once the decision was made the Director undertook an official Montessori program herself which provided her with a formal Montessori teaching qualification.

### **Montessori's Approach to Education**

Montessori's training as a medical doctor, together with her studies in anthropology, philosophy, psychology, education, and her experiences in teaching children with mental disabilities provided her with a background to develop what she considered a "scientific pedagogy". She wrote:

Our aim in education in general is two-fold, biological and social. From the biological standpoint we wish to help the natural development of the individual, from the social standpoint it is our aim to prepare the individual for the environment. ... The education of the senses is most important from both of these points of view (1912, p. 150).

She believed in the power of each child to learn through observing and adapting to life especially in the important first six years of life, and advocated an education that would provide children with a stimulating environment in which they could "experiment" and learn through their experiences. She designed learning materials to be used in classrooms which allowed children to identify their errors and learn without being corrected directly by the teacher.

Montessori emphasised the importance of the child in doing "work" (learning) by themselves. She demanded that a teacher must be a careful and systematic observer of each child in order to be aware of what and how each child has been learning, and when a child might be ready to grasp the opportunity to move onto different or more complex concepts.

Montessori saw a child's natural development as taking steps towards achieving independence through different "planes of development". The first plane extended from birth until six years of age. In the first three years the child learns through sensory experiences. During the second half of the first plane, a child learns in a more conscious way by being encouraged to actively do things on their own (Montessori, 1912, p. 150).

Montessori wrote about a "new pedagogy" which has important implications for teachers.

It is my belief that the thing we should cultivate in our teachers is more the spirit than the mechanical skill [of teaching] ... we wish to awaken in the mind and the heart of the educator an interest in natural phenomena (1949, pp. 28–29).

To be able to achieve this the school must be set up in such a way that a child may be observed in a systematic, yet unobtrusive way. She believed the teacher's task was not to talk at the children, but to prepare activities, based on specifically designed materials which would assist children to act and think for themselves. The child would be free to select the activity and materials that caught their attention at any time (Montessori, 1949, p.229). In this context what is commonly thought of as a "lesson" becomes an experiment for the child. Any guidance

offered by the teacher should be brief, simple, and aimed at assisting the child to achieve the child's objective.

### **Implementing a Montessori Approach**

In the centres about two hours every morning was spent using Montessori teaching and learning activities and materials. During this time each child had access to a range of learning materials, some devised by Montessori over 100 years ago, supplemented by newer materials created by teachers, but based on Montessori principles. Each piece of learning material was designed to produce a specific learning outcome for an individual child. Some newer materials reflected the influence of Chinese traditional art, festivals, and local cultures.

The learning materials were laid out on shelves which were easy for the children to access. The children were free to choose any of the materials which interested them and to spend as much time as they wished using them. During this time the teacher systematically observed individual children and recorded his/her observations in order to understand their learning and developmental needs. In the afternoon, group activities which involved music, art, language, and personal safety were organised according to the ages of the children.

There was a considerable difference in the level of qualifications and experience among the staff. Four had a bachelor's degree or above, while two-thirds of the staff either had a college diploma or vocational school certification. A few had only completed high school. Some have taught in traditional schools for a number of years, but others have only taught in schools for a short time. The Director made the following comment:

*Young teachers, who form the majority of our teacher group, don't have the experience of self-learning as they were taught in a traditional way. They have little idea of how to stimulate the children's active learning.*

A persistent issue for most early childhood centres in China is a constant turnover of staff, with few staying for more than one or two years. According to a report in the China Daily (2 January, 2020) the shortage of public kindergartens and teachers can be attributed to the poor pay, heavy responsibilities, and pressures from the children's parents. The Director expressed a desire for teachers to stay for at least three years so they could work with the same group of children through the whole of Montessori's first plane of development.

### **Research Methods**

This study, which took place over four months in the first half of 2020, is a qualitative case study and is interpretive in nature (Merriam & Tisdell, 2016). It was conducted by the Director of the two ECE centres. It is a requirement of the Chinese Government that teachers undertake professional learning activities on a regular basis and that a record be kept of these activities. This record of activities, together with the Director's observations, reflections and interactions with teachers through individual interviews and focus group interviews and a survey into teachers' preferred modes of professional learning, form the basis of this study. Apart from the identity of the Director, no individual member of staff can be identified. The results were analysed by using the seven elements of effective professional learning identified by Darling-Hammond et al. (2017). A limitation of this study is that it reports on the professional learning program developed for the teachers, but it does not report on how the program changed teaching practices. This will form the basis of a future study

The professional learning activities for all staff were conducted online each morning for about one-and a-half to two hours from early February until June while the schools were closed, and all teachers were isolated from each other in their own homes. Most of the staff members' learning activities were shared using "live broadcast" within the learning group on the Ding Ding app. This meant that teachers could listen to presenters and view PowerPoint slides, but questions to the presenter had to be typed into a message and sent separately in order to be read and answered. The computer screen showed the presenter in the upper right corner of the screen and questions appeared on another part of the screen. This approach caused some difficulties for discussions, but alternative approaches, such as video conferencing, proved less successful because of bandwidth issues and the lack of suitable software.

## Results

The results of the study are reported under two headings related to the timing of the professional learning activities and staff reactions: February-March, and April-June.

### Phase 1: February-March

The first three professional learning sessions outlined what was involved in the Montessori approach and illustrated how it differed from traditional Chinese education. The sessions included the essentials of the Montessori approach and the different role for teachers. Teachers were presented with ways of building a Montessori environment in their classrooms. These sessions were mostly theoretical and involved introducing elements of Montessori's philosophy in a didactic manner, although there were opportunities for questions and comments. A very important part of the Montessori approach is the observation of an individual child whilst interacting with the learning materials. Teachers were instructed on how to observe in a non-intrusive manner, and how to record a child's reactions towards and with the materials in a systematic and regular manner. As an essential part of the first three sessions teachers were introduced to Montessori's ideas of regulation and freedom of the children.

The succeeding sessions were more practical in their focus but difficult to conduct because the teachers were isolated from one another. Experienced teachers demonstrated and discussed how they used traditional Montessori materials for all teachers to observe. This was particularly useful for the less experienced teachers as they were encouraged to observe, note, and comment on what occurred.

Teachers were asked to develop hand-made "complementary Montessori" materials to share with colleagues. In most of the sessions one teacher presented her new material in a manner which demonstrated how it might be used in the actual learning environment and what learning was likely to be achieved by a child "working" with that material.

The content of each of the sessions was found easy to understand and teachers thought the key points were clearly emphasised and the content of each session clarified their work in the classroom and inspired their practical work. They thought the presenters made interesting and informative presentations and answered questions clearly. They especially appreciated the way in which the presenters focused their main message on the teachers' everyday work. Overall, all participants were well satisfied with the professional learning sessions, although a few indicated they would have liked more interactive activities, however the technology available did not allow for this to occur at the level which was desired.

A number of teachers found it very useful to be able to review each session at a later time as this allowed them to clarify their thinking and reflect upon the important messages, as well as picking up on points they may have missed initially. They indicated that when participating as a member of a group of 35 and interacting spontaneously it was difficult to grasp the significance of everything that was said.

After the initial three sessions it was decided that the following sessions should have a specific focus resulting in teachers being provided with focus questions to consider in preparation for the next day's session. Some key readings were also provided to stimulate their thinking. These measures assisted teachers, especially those with less experience, and provided a definite focus for each professional learning session.

Table 1: Details of selected professional learning sessions based on Director's notes

| Time                | Topic of learning activities  | Presenter   | Learners     |
|---------------------|---|---|--------------|
| 11Feb.<br>(Day 1)   | Presentation: "The basic theories of Montessori education" followed by question and answers   | Director  | All teachers |
| 13 Feb.<br>(Day 3)  | Presentation: Observation and recording, freedom and regulation"<br>Homework: Come to session with questions about basic theories of Montessori education   | Director  | All teachers |
| 18Feb.<br>(Day 6)   | Discussion: questions about teaching the area of Practical Life in Montessori classroom<br>Sharing: hand-made materials for the area  | An experienced teacher  | All teachers |
| 25 Feb.<br>(Day 11) | Homework: hand-made traditional Montessori sensorial material called "Pink Tower"   | One principal   | All teachers |
| 4 March<br>(Day 18) | 1. Question raised by teachers<br>2. Showing pictures of Constructive Triangles II hand-made by each teacher<br>3. Sharing the making process<br>4. Three teachers demonstrate the process using their hand-made materials in a live session or a video recording uploaded to the online learning group<br>5. Discussion about the session and the uploaded video<br>6. Homework: 1) singing practice; 2) hand-made traditional Montessori sensorial material called Constructive Triangles III | Activity 1. discussed by teachers and director<br><br>Activities 2-6. conducted by an experienced teacher | All teachers |

Two formal evaluations of the professional learning activities were undertaken in this phase. In late February, a survey was distributed to all teachers and towards the end of March focus group discussions were held involving all teachers, followed by separate focus group discussions with specific groups of teachers, and individual meetings with beginning teachers.

The survey indicated that the majority of teachers spent three or more hours on the first three sessions which focused on the basic theory of Montessori education, Montessori environment and materials, and methods of observing and recording children's learning. All teachers reported that the online presentations assisted them to understand Montessori's approach, but

most teachers found the sessions on the development and use Montessori materials were the most useful.

When surveyed about the forms of professional learning they preferred, the teachers indicated they preferred online synchronous lessons and interactive learning approaches best. The 31 respondents were able to choose one preferred form of professional learning, or as many as they wished.

Table 2: Teachers' preferred modes of professional learning

| Mode of professional learning      | Numbers selecting each mode        |
|------------------------------------|------------------------------------|
| Online live (synchronous) sessions | 22 (1 person chose only this form) |
| Online interactive learning        | 22 (2 people chose only this form) |
| Off-line interactive learning      | 22 (1 person chose only this form) |
| Workshops or seminars              | 20                                 |
| Professional reading               | 17                                 |
| Face-to-face presentations         | 14 (2 people chose only this form) |

In the second part of this phase emphasis was placed upon developing materials based upon Montessori principles, and focus group discussions began. The majority of comments from teachers indicated their interest was stimulated by the learning materials other teachers had prepared, as well as developing a renewed interest in their own learning and their deeper understanding of Montessori principles. Teachers commented:

*I have become more skilful in operating these materials than before. My memory [of how they should be used] was somewhat fading away, and now it is refreshed (A Head Teacher).*

*At the beginning I participated in making new materials because I'm a leader of a teaching group so I must make my presentation for our teachers as a positive role model. But eventually, I found it has become more and more interesting, so I make everything with a passion (A Head Teacher).*

*Making teaching materials improved my concentration and dug out my potential. I did not think I could be so good. In the past I was a very careless person. When [my supervisor] saw my work she said she had got to know a different me (A less experienced teacher).*

The focus group discussions with the less experienced teachers provided some additional insights into their uncertainties and lack of experience. Despite encouragement from presenters some of the younger teachers felt shy and uncertain about contributing to the discussions and asking questions publicly. The following comments from less experienced teachers indicate this:

*I wanted to listen to other teachers about how to answer first and then answer myself. But by then the discussion had moved to the next question too quickly.*

In spite of this, listening to the issues that teachers discussed together was very useful:

*Listening to the teacher's story about their class and the teacher's answers is very helpful. In the future, if I encounter such children or such situations, I will know how to help them. I have learned some methods from other teachers' experiences.*

Some less experienced teachers were concerned that different teachers used the learning materials in slightly different ways. This confused them because they seemed to think that there was only one correct way to use the materials. Some beginning teachers commented:

*I found that teachers have their own operating habits, and there are differences. I hoped to have a unified approach which I could follow in the future.*

and,

*When we watched the replays of live broadcasts, some teachers presented materials in different ways. We got confused and don't know which one is correct.*

This reflects their reliance upon their previous experience associated with didactic approaches to teaching and learning. However, it was obvious that less experienced teachers found the sessions useful and one suggested that the broadcasts and videoconferences could be transferred to videos. This would allow the teachers to re-watch and re-listen to presentations and discussions and help overcome the problems of poor computer connections. This would help them clarify issues that were missed while they tried to be active in the discussions.

A written comment by the Director towards the end of March provides a positive view of the results of the program at that time:

*This morning I was so surprised by the quality of the hand-made materials the teachers made at home. They are so sophisticated. It has been such a joy to be involved in the teachers' experience-sharing in the morning learning sessions. I believe this group is so much better than before. It is so unexpected but a great achievement while we're losing so much during the pandemic. This keeps me feeling hopeful and that we will be successful in being able to battle this most difficult situation that we have ever met.*

## **Phase 2: April-June**

During April and May discussion groups and online learning activities continued. Specialised online discussions and activities were set up for different groups of teachers. These groups were led by the Director and the two Principals and focused on the different work and needs of clusters of teachers.

In April a series of sessions for the Principals and Head Teachers began. When asked to suggest issues which would form the basis of these sessions, they identified the following:

- How to understand children better through observing their behaviours;
- How to improve leadership;
- The methods of developing children's abilities;
- How to build up better trust with parents through communication;
- How to organise the daily work better;

- The management of a Montessori class;
- How to build a cohesive and energetic team;
- How to deal with an injured child.

Materials on each issue were prepared and the Head Teachers were provided with one or two readings prior to each session. Head Teachers were encouraged to use their previous experiences to provide “real” scenarios for discussion. Details of selected sessions based on the Director’s notes are presented below:

Table 3: Selected professional learning sessions for Head Teachers

| Time             | Learning Activities  | Presenter | Learners                     |
|------------------|--|-----------|------------------------------|
| 24 March (Day 1) | 1. Participants vote for the issues that concern them most to choose the contents for their learning that could most help them at their position in the centres  | Director  | Head Teachers and Principals |
| 31 March (Day 2) | 1. Presentation: Team Cohesion and Personal Leadership: <ul style="list-style-type: none"> <li>• Understand yourself better</li> <li>• Teambuilding and cohesion</li> <li>• Core management skills and leadership</li> </ul> 2. Interaction with learners about: What kind of person am I?<br>3. Homework: Describe your strengths and weaknesses. Devise a plan to improve your strengths and overcome your weaknesses.   | Director  | Head Teachers and Principals |
| 2 April (Day 3)  | Presentation: Team Work and Efficiency Management <ul style="list-style-type: none"> <li>• Time management</li> <li>• Plan-making</li> <li>• Power of regulation</li> </ul> Homework: <ul style="list-style-type: none"> <li>• Prioritising your work</li> <li>• Short term and long-term goals for your team</li> <li>• Describe a conflict among children and prepare your language to help solve the problem</li> </ul> | Director  | Head Teachers and Principals |
| 10 April (Day 5) | Discussion: Studying the book “Understanding and Positive Guidance of Children” <ul style="list-style-type: none"> <li>• Indoor environment that suits children’s development</li> <li>• Positive communication</li> <li>• Effective interference of behaviour guidance.</li> <li>• Real examples</li> </ul>   | Director  | Head Teachers and Principals |

Towards the end of May some less experienced teachers were becoming aware of the pressure parents were likely to put on them once the children returned. They wondered how they might gain parents' trust. The young teachers were aware that the Montessori method was very different to what they had experienced in their own education. They thought it might be difficult to convince parents that the children were learning because it might appear that the children were "playing" with materials rather than "learning". The Director, together with the two Principals decided that the parents needed to be aware of the basis of the Montessori approach and to accept it as the way in which learning now takes place in the two ECE centres. The Director planned to have meetings for parents once the coronavirus quarantine was lifted to explain the processes involved in a Montessori approach. In the meantime, parents were provided with online materials which explained Montessori education.

Over the period of physical isolation necessitated by COVID-19, the Director provided some insights into staff reactions to being isolated physically from colleagues and the children.

*The morale and cohesion of the whole teacher team has been considerably increased since we started the online program. ... I don't know the exact reason but strongly feel it might be because of the difficulties everybody shares right now ... We realise it is better to stay with the groups we are in to support [each other] .... It may give each other more security when everybody feels the stress from the uncertainty spreading in the whole society.*

In the past the Director had found it difficult to stimulate much discussion during face-to-face professional learning sessions. She suggested that this could have been due to her role as the Director as well as the trainer. Part of the way through the online professional learning program she stated:

*There are so many more teachers involved in discussion now online. They can have some preparation before each discussion. ... It wasn't like this at the beginning of the online sessions, [but] we decided to give teachers notice and a few related questions to think about in advance. I found the group discussion online is so different.*

The regular online sessions involving practical exercises increased the level of teachers' personal communications, especially among experienced teachers. The Head Teachers now understood that they had a role to play in leading younger colleagues in understanding why and how the Montessori approach leads to a special kind of children's learning.

Teachers chosen to demonstrate online how they used the learning materials with children took their role very seriously. They conferred with other experienced teachers prior to their demonstration to ensure that the details they provided were accurate and clearly expressed. As the Director states, this unexpected outcome *seems to have contributed to group learning in a self-motivating way*. A learning community was developing.

An important reason that the teachers, as unpaid volunteers, continued their involvement in the program after the planned one-week was that, as they were in isolation, they looked forward to the opportunity to see and hear their colleagues on a regular basis.

The Director could see many advantages to online learning. She stated:

*I'd seriously consider using this form of learning (online) regularly in the future, in addition to our usual face-to-face professional learning activities.*

### **Analysis and Discussion**

The results of this study are analysed through the seven elements of effective professional learning programs identified by Darling-Hammond et al. (2017).

#### **Content-Focused**

Effective professional learning involves teaching strategies and specific pedagogies which are associated with specific curriculum content (Darling-Hammond et al., 2017 pp. 5–7). It was planned that the two ECE centres adopt a modified Montessori approach to education. In the early stages of the teachers' learning program, they were introduced to the philosophy and principles of the Montessori method with emphasis on "the education of the senses". In later sessions some specific approaches advocated for teaching reading, writing, language, and numeration were introduced. Teachers worked with special materials developed on Montessori principles and through this began to understand what Montessori was trying to achieve through her pedagogical methods and materials.

#### **Active Learning**

Effective professional learning provides opportunities for teachers to design and try out new teaching strategies and to engage in the same style of learning they are designing for their students (Darling-Hammond et al., 2017, pp. 7–9). After an introduction to Montessori's philosophy of education and child development, all activities had a practical emphasis. Teachers were given tasks to develop materials which could be used to produce the types of learning advocated by Montessori. During each session selected teachers would explain how they developed materials, and they also demonstrated online how they would use the materials with children. Given the nature of the situation under which the professional learning took place it was not possible for teachers to physically practice the new materials with children, however, teachers gained confidence in their own ability to adapt to the Montessori method.

#### **Collaboration**

Effective professional learning helps teachers create communities of learners which can change the culture of instruction by providing time and space for the sharing of ideas (Darling-Hammond et al., 2017, pp. 9–11). Although teachers were separated by distance, they were united in sharing the presentations and discussions that occurred during the online sessions. A high degree of collaboration was developed because of the regularity of the meetings which led to teachers becoming more familiar with each other as individuals. As the isolation restrictions were eased small groups of teachers were able to begin to meet face-to-face. The special series of sessions for Head Teachers were developed specifically to meet their espoused needs. As a result of allowing Head Teachers to meet online and face-to-face they developed their own learning community. These communities showed how Head Teachers might become pedagogical leaders for the other two members in each of their groups.

#### **Models of Effective Practice**

Effective professional learning involves teachers developing a clear understanding of what appropriate professional practice might look like as well as providing opportunities for teachers to share stories of actual teaching events (Darling-Hammond et al., 2017, pp. 11–12). During the online meetings teachers were encouraged to share positive examples of their teaching practice. Although it was mainly the more experienced teachers who were able to do this, newer

teachers learned from the practical stories of their colleagues. When demonstrating how they thought new materials might be used in the classroom teachers used effective practices and also elicited possible modifications from other teachers.

### **Expert Support**

Effective professional learning focuses directly upon the individual needs of teachers, allows them to share personal expertise, and provides appropriate support from experts (Darling-Hammond et al., 2017, pp. 12–14). Having graduated with a professional qualification in the Montessori approach to education the Director was able to answer questions and clarify what the materials and activities were designed to achieve. She was supported in this by her two Principals. The provision of expert support was most important because the Montessori approach is so different to what most teachers had experienced throughout their own schooling. Two areas of concern for some teachers were how to maintain discipline in the classroom and how to respond to parents who questioned the Montessori approach. Discipline in the classroom can only become a practical reality once the classes are in operation. The teachers understand, in theory, Montessori's approach that a child developing self-discipline occurs through an understanding of how their behaviour might impact upon others in the classroom. Convincing parents of the advantages of a Montessori education is a task for the Director and the two Principals. In order to achieve this objective, the Director is conducting meetings with parents to explain what, how, and why certain things are important in the education of their children.

### **Feedback and Reflection**

Effective professional learning involves teacher reflection and allows time for teachers to think about their practice (Darling-Hammond et al., 2017, pp. 14–15). Although there were some technical difficulties in providing instant feedback during the group online sessions, these difficulties were overcome to a certain extent when it was possible to organise discussions for special groups. One outcome from the online sessions was that teachers were able to review and reflect upon what happened during each session. Many teachers liked the fact that they could re-watch the sessions at a later time. While they were participants in real-time sessions there was no time to think about what they had observed, nor was there time for reflection. Re-watching provided for thinking and reflecting.

### **Sustained Duration**

Effective professional learning provides adequate time for learning. It consists of multiple opportunities for learning over a sustained time period (Darling-Hammond et al., 2017, p. 15). For four months teachers interacted with each other on an almost daily basis, discussing professional issues and clarifying for themselves what the Montessori approach meant for them and the children they were to teach. Prior to this, teachers from each centre used to meet separately at the end of each week, and both centres met together every two months. From the teachers' comments, much was gained from the regularity of the sessions they spent together online, but physically apart. The stresses of being unable to socialise, or do the things they liked to do, and being unable to work face-to-face was, in part, overcome by the feeling that they were not alone and that others were having similar feelings. The fact that they knew they could interact with colleagues who were in the same predicament on a regular basis was reassuring.

## Conclusion

The professional learning program was initially planned to be implemented over a one-week period. During this time teachers at two early childhood education centres in Shandong province, China would learn about the Montessori approach, and the philosophy underpinning its pedagogy and curriculum. As a result of the government requirement for individuals to quarantine themselves for an indeterminate length of time the program grew and developed into a highly practical experience. The mode of delivering the program was rapidly adapted from face-to-face to online learning.

Teachers' comments after their professional learning program indicated that they felt prepared to implement a learning program for children which is different to that which they had experienced as students. A greater sense of collegiality was developed during the months of professional learning, and teachers were able to develop closer relationships with each other. The teaching group structure of three people, Head Teacher, Teacher, and Carer was very important, especially for professional learning in the future. Each member of each group got to know other members better and came to understand their colleagues' strengths and weaknesses.

A factor which contributed to the success of the professional learning project was the ability of the Director to see opportunities the extended period of professional learning presented. This additional time allowed for the development of a more extensive program involving input from staff members, and the consideration of issues which otherwise could not have been addressed. At the beginning of June, when the children were permitted to return to the centres, the teachers reported that they felt refreshed and were eager to try out the things they had learned.

The elements of effective professional learning identified by Darling-Hammond et al. (2017) were reflected in the literature consulted and the seven elements were found to provide a useful structure for the analysis of the results of the program. What remains to be determined is the impact the professional learning program has had on teachers' practices in the classroom once the children return.

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