Electronic mentoring: An innovative approach to providing clinical support

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Aims: Professional isolation is a contributing factor to poor recruitment and retention of physical therapists in rural positions. This article describes the implementation and evaluation of a pilot electronic mentoring, or e-mentoring, programme to address the need for support of physical therapists working in rural positions, in British Colombia, Canada.

Methods: An action research approach was used to examine whether an e-mentoring programme could effectively support physical therapists in paediatric clinical practice. The pilot programme involved an experienced physical therapist who mentored two sole charge physical therapists with no paediatric experience from a distance using their laptop computers. Programme evaluation data was obtained through questionnaires, field notes and a final group meeting using videoconferencing.

Findings: The key to the success of the e-mentoring programme was the collaborative interaction between the mentor and the mentee. Other factors that supported this interaction and beneficial outcomes of the programme were identified.

Conclusions: This pilot study has shown that technology combined with skilled communication can break down the barriers of distance and be an effective tool for clinical support. Further research is needed to establish the optimal organization of this type of programme and to rigorously evaluate the long-term benefits and effectiveness of e-mentoring.

Professional isolation is a contributing factor to poor recruitment and retention of physical therapists in rural positions (Paterson et al, 2004; Struber, 2004a; Kalisch et al, 2005). In 2001 a task force was formed to examine the recruitment and retention issues for paediatric therapy services in British Columbia, Canada (Cameron et al, 2001). The report described the shortage of physical therapists with paediatric experience in British Columbia, particularly in rural areas, and the authors concluded that 'the supply of paediatric therapists and the demand for paediatric therapy services is at a critical juncture' (Cameron et al, 2001: p18). In addition, their demographic analysis indicated that a large number of experienced paediatric physical therapists will be ready to retire in the next 5–10 years. According to Cameron et al (2001: p6):

'Geographical location makes professional development a challenge, while isolation makes it essential for professional growth and peer support…'

The role of mentoring

Mentoring has been promoted as a means to overcoming professional isolation and a way to provide clinical support for health-care workers (Greene and Puetzer, 2002; Rideout, 2006) A mentor is a more experienced colleague who comes alongside a less experienced colleague or a mentee to facilitate their professional development through teaching, counselling, support and guidance. Mentorlink is one example of a facilitated distance mentoring programme developed by the Australian Occupational Therapy Association that 'arose as a creative response to requests for more professional support' (Wilding and Marais-Strydom, 2002: p225). This programme was designed to match mentors with mentees to provide clinical support to therapists in distant areas of Australia and has proven to be very successful.

The use of technology may offer a solution to the problem of isolation experienced by health professionals in geographically large and

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disparate regions. Electronic mentoring—or e-mentoring—uses the same one-to-one relationship as traditional mentoring programmes but instead of meeting face-to-face, the communication is achieved through email or videoconferencing. In light of Cameron et al's (2001) findings on the shortage of paediatric physical therapists in British Colombia and the related challenges of practice when working in isolation, the authors decided to use an action research approach to examine the implementation and evaluation of a pilot e-mentoring programme for physical therapists in paediatric clinical practice in these outlying areas. This article describes the action research project and its findings.

LITERATURE REVIEW

An extensive search of the literature for articles on e-mentoring for health-care professionals using CINHAL, Medline and the Cochrane databases was conducted.

Mentors facilitate and guide through reflection

In the initial search, only two descriptive articles were found (Frederick, 2005; Kalisch et al, 2005). Kalisch et al (2005) described the formation of an electronic mentoring community of nurses for the purpose of encouraging students to consider nursing as a profession. The authors connected 396 students across the United States with 127 mentors for 3 months and evaluated the programme using involvement data, and formative and summative data. They concluded that a structured approach to e-mentoring and a programme coordinator were key to the success of the programme. In an editorial aimed at motivating professional development in nursing, Frederick (2005: p1) urged nurses to consider e-mentoring as:

'the perfect formula in combining one-to-one mentoring with fast, convenient means of communication'.

The literature search was then broadened to include traditional mentoring and distance learning. For the purpose of this article the mentor's role is described as: 'to facilitate, guide, advise and counsel' (The Chartered Society of Physiotherapy 2006: p9), and a mentor is defined as a more experienced professional and the mentee a less experienced colleague. As the relationship is developed, the mentor will advise and support the mentee in their learning by providing feedback through discussion and by encouraging critical thinking through reflection. As Rideout (2006: p3) states:

'A good mentor encourages the protégé to acquire the 'tools' to reach their goals. A good mentor does not 'feed' information and answers to the protégé, but makes the protégé think and assess.'

Reflective learning enables the mentee to take responsibility for their learning (Lahteenmaki, 2005). Mentorship programmes have been shown to facilitate professional development, motivation, self-confidence, self-esteem and independent thinking (Harrison and Hong, 2004; Milner and Bossers, 2004). Mentors need to be approachable, good listeners, respectful and deserving of respect, interested, trustworthy and encouraging. They also need to have well developed skills in clinical and analytic reasoning, reflection and evaluation, and listening (Andrews and Wallis, 1999; The Chartered Society of Physiotherapy, 2006; Rideout, 2006).

The use of technology in reducing professional isolation

The literature on distance learning is growing rapidly. Technology is being used in different ways to break down the barriers of distance and expertise (Struber, 2004b; Mathur et al, 2005). Technology such as WebCT (course tools), videoconferencing and email allow communication to occur without scheduling, thus enabling greater flexibility for learning. To investigate the use of information and communication technologies by rural occupational therapists in Western Australia, Taylor and Lee (2005) surveyed 1138 occupational therapists. The authors aimed to identify usage patterns, access and technical support issues related to using different forms of information and communication technology. The response rate was 36% with 413 surveys returned. The authors found that rural occupational therapists used information and communication technology as a:

'means of circumventing professional isolation that is inherent in rural and remote areas'. (Taylor and Lee, 2005: p51)

Kalisch et al (2005: p241) considered the benefits of e-mentoring from the perspective of nurse mentors 'who do not have time for face-to-face interaction with students but are able to provide advice, information and support while sitting at their desks, workstations or at home'. Paterson et al (2004) used technology to support students in rural placements. They found that 'the weekly teleconference helped to alleviate the student's sense of isolation and need for support' (Paterson et al, 2004: p32). However, Rideout (2006: p47) cautioned that the 'delay intrinsic to email eliminates the usual give and take of verbal communication'. The communication skills required for electronic communication are therefore unique and different from face-to-face communication.

AIMS

Given the potential and increasing use of technology, there is a need to study the benefits and difficulties of these new forms of communication in a health-care mentoring context. The aim of this research was to address this need by evaluating a pilot e-mentoring programme designed to provide support for rural paediatric physical therapists in sole charge positions in British Colombia, Canada. The specific research questions were:

- Can an e-mentoring programme effectively support physical therapists in clinical practice?
- What is the experience of mentees using iChat and email to communicate with their mentor?

DESIGN

An action research design (Stringer and Genat, 2004) was chosen as most appropriate for this research. The research topic arose from the primary researcher's (SS) previous mentoring experience with physical therapists. However, characteristic of action research, the mentor and mentees involved in the e-mentoring programme were stakeholders and, as such, informed the research throughout the project design and implementation process. They had a stake in the project and its outcome because they were affected by the programme and had an influence on its development and evaluation. As Craig (2004: p234) states:

'The field intensive process of action research [also] requires the practitioner to take part in prolonged engagement' and: **'recognizes the 'researcher-as-instrument' as sound practice.'**

METHODS

Ethical approval for this project was obtained from the University of British Columbia Behavioral Research Ethics Board and the Children's and Women's Health Centre Research Review Board. Physical therapists were recruited by advertising the proposed programme through the provincial paediatric therapy consultant who is responsible for recruitment and retention of paediatric therapists throughout the province of British Columbia. Mentees were purposively selected based on the following inclusion criteria. The therapists:

- Needed to be in sole charge paediatric positions with limited paediatric experience
- Must have identified a need for clinical support
- Must have the support from the agency that employed them.

The number of mentees was limited to two and the length of the pilot programme was 3 months. The sample size and programme length were primarily chosen for pragmatic reasons: the pilot study was conducted as part of a Masters in Rehabilitation Sciences programme and, as a result, the programme could be completed in the programme time frame.

Participants

One of the mentees was a physiotherapist with 20 years of orthopaedic adult experience but no prior paediatric experience. The second mentee was a new graduate in her first job. Both mentees were new to their communities, working as sole practitioners and identified themselves as having no clinical support. The 3-month pilot e-mentoring programme was implemented in the winter of 2007. The primary researcher (SS), a physical therapist with 24 years of paediatric experience, assumed the role of mentor. SS was an experienced teacher and informal mentor, but was not a formal mentor.

Programme implementation

One mentee was loaned a Macintosh laptop computer with iChat (Apple Inc) technology for the duration of the project and the other mentee already had the technology. iChat is communication software available on Macintosh computers; the laptop is equipped with a webcam and microphone which allows a face-to-face conversation with up to four people at one time. The iChat technology enabled the mentor and two mentees to communicate via text, audio or video (*Figure 1*) and allowed two-way and three-way communication in all three mediums to occur. In this way both synchronous and asynchronous communication was possible. Macintosh computers were used because of their reputation for requiring little technical support.

Figure 1. The photo demonstrates the mentor talking to the two mentees using iChat

The participants were actively involved in providing feedback on the structure of the e-mentoring sessions. Initially the study was designed to use three forms of communication; daily email, weekly iChat and monthly videoconferencing. However, after 2 weeks of the pilot programme the participants found the face-to-face contact of iChat more useful than email and therefore the structure was changed to twice weekly iChat with email being used very infrequently.

The pilot continued with twice weekly iChat sessions and monthly videoconferencing. Clinical questions, information about resources, and caseload management issues were some of the areas addressed. A monthly videoconference, involving all three participants, was scheduled using a clinical case study format. Generally one case study was done per session. One mentee would be responsible for leading the discussion and would therefore send all information and any pictures or video clips ahead of time to the other participants. In this way, the case could be discussed and time was not wasted once the videoconference started. Still and video images from a digital camera were used to augment the discussion. The mentees took turns leading the case studies with the mentor facilitating reflection to enhance the development of clinical reasoning.

Programme evaluation

The pilot programme was evaluated using a number of methods. Both mentees completed a short questionnaire that used a seven-point adjectival scale and focused on the degree of support for clinical practice. The questionnaire was completed both before and after the pilot programme and covered accessibility of paediatric resources, the availability of paediatric clinicians to consult with, and the level of awareness of current paediatric therapies that they experienced before and after the project.

What aspects of the e-mentoring programme have been most beneficial for you?

Can you comment on the length of the programme? How long should an e-mentoring programme be continued? Should it change over time?

What, in your opinion, would be the optimal interaction in terms of scheduling, type of communication, activity?

Were there areas of the programme that you thought needed improvement? Can you think of possible solutions for these areas?

Can you describe any experiences during the pilot project that were particularly meaningful to you?

How did you find the technology?

Figure 2. Questionnaire exploring perceptions of the e-mentoring experience following the pilot mentoring programme

Both the mentees and mentor kept field notes of their discussions throughout the project. These field notes encouraged the participants to continually reflect on the e-mentoring process. After the pilot, both mentees completed a questionnaire designed to assess their perceptions of the use of the technology and identify any difficulties encountered. They also completed a questionnaire comprising six open-ended questions aimed at encouraging them to articulate their perceptions of the e-mentoring experience (*Figure 2*). A final group meeting, using videoconferencing, was held to facilitate a comprehensive examination of the project. This meeting was videotaped so that the discussion data could be reviewed.

The data derived from the iChat questionnaire, the group meeting and the field notes were analysed using a template involving six steps (Braun and Clarke, 2006):

■ Become familiar with the data
■ Generate initial codes
■ Search for themes
■ Review the themes
■ Define and name the themes
■ Produce a report.

The primary researcher (SS) analysed the data and a colleague with experience in qualitative research was asked to review the analytical process. The mentees also reviewed the emerging themes and provided feedback which was incorporated into the findings. In this way the strategies of member checking, triangulation and peer review were integrated into the data collection and analysis processes to enhance the rigour of the research.

FINDINGS

The mentees reported increased perceptions of clinical support in all of the areas addressed on the post pilot questionnaires. They reported that the technology was easy to use and they particularly found the monthly videoconferences helpful in developing their clinical reasoning. Nine overall themes emerged through the data analysis process which reviewed the questionnaires, field notes and audio recording of the final meeting. The importance of the interaction between the mentee and mentor was identified as a central and recurring theme. This interaction was perceived by the mentees as facilitating knowledge exchange and shared learning between mentor and mentees, as well as between the mentees. The nature of the interaction enabled the type of rigorous reflective process that is essential for the development of an autonomous clinician. Other themes focused on factors that enabled or supported the interaction and outcomes or effects resulting from the interaction in the

e-mentoring process. *Figure 3* illustrates the interrelationship between the central themes of interaction and enabling factors on the left side of the diagram, such as technology, logistics, characteristics of participants, and relationship, and the outcomes or effects of the programme, such as effective communication, improved clinical reasoning and confidence, and knowledge translation represented on the right side.

Enabling factors

Technology, somewhat surprisingly, was seen as an enabling factor rather than a source of concern or anxiety. This finding perhaps reflects the lack of technological problems encountered during the programme. The logistics of how and when the communication took place was seen as flexible and negotiable and was adapted to accommodate both the mentees and mentor. Both mentees reported that it was the face-to-face discussion using iChat that was a helpful tool for the development of their clinical reasoning.

As one mentee explained, it was only through the discussion of the clinical case with the mentor that the clinical questions related to the complex cases being presented, which she wished or needed to articulate, became clear. Both mentees felt that this method of discussion facilitated reflection on their clinical reasoning and that this type of clarity would have been more difficult to achieve using email communication alone. As one mentee explained:

'Sometimes I did not have a clear question. So you need to talk about it. The question develops or you are affirmed in your thinking…this is how I learn.'
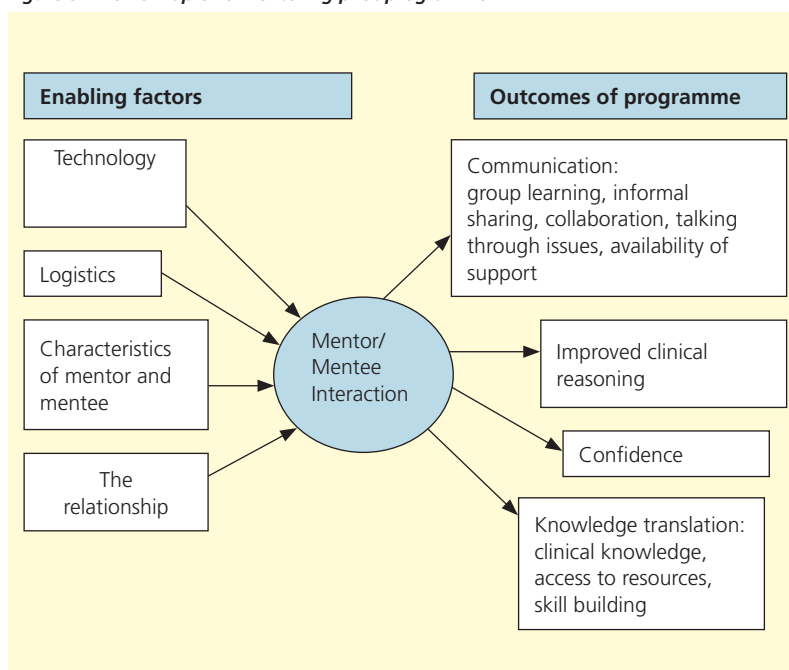
Both mentees reported that the joint case conference was a very positive learning method. It was important to the mentees that the participants in the e-mentoring programme had similar characteristics in terms of attitude and commitment to shared learning and the need for compatibility is supported in the literature (Andrews and Wallis, 1999; The Chartered Society of Physiotherapy, 2006; Rideout, 2006). Lastly the relationship clearly needs to be one of colleagues supporting other colleagues. Trust and reciprocity need to be hallmarks of the e-mentoring relationship and, as Rideout (2006: p46) states:

'the relationship should be collaborative, with both parties sharing accountability for the success of the relationship'.

Programme outcomes

The mentees identified a number of outcomes resulting from their involvement in the e-mentoring programme, which focused on communica-

Figure 3. Theme map of e-mentoring pilot programme

tion, clinical reasoning, confidence and knowledge translation. They reported that the iChat sessions replicated the colleague interaction that was missing in sole charge positions. They particularly appreciated the ability to discuss complicated clinical cases. One mentee reported that she was worried at first about having to 'talk' to the mentor and wondered if in fact she would have enough to say or ask during the iChat sessions. Both mentees discovered that, although they found the programme expectations somewhat intimidating at first, their clinical reasoning improved as they discussed their cases. As one mentee said:

'My critical reasoning really improved because, during iChat, you have to think it out all together. You may look at the whole situation and feel really overwhelmed but by talking things through you are able to focus better.'

These ongoing interactions promoted effective communication with an emphasis on collaborative and group learning, informal knowledge sharing and the ability to talk through issues. The mentees reported an increase in confidence in their own clinical decision-making and ability to translate new knowledge into practice. As one mentee said:

'The electronic mentoring allowed me to reflect on my own instead of asking right away… It decreased the sense of being overwhelmed and second guessing.'

Mentees also reported that the programme gave them a forum for knowledge exchange, skill building and access to resources that they would not otherwise have known about.

DISCUSSION

This pilot demonstrates that electronic mentoring may be a useful tool in supporting physiotherapists in isolated posts and describes two mentees experiences of using alternative forms of communication. Both mentees were sole charge physiotherapists with supervisors from other disciplines. The mentees reported feeling 'completely alone' clinically before their mentoring experience. Evaluation of the e-mentoring programme revealed that their feelings of clinical isolation dissipated through regular contact and support from their mentor. They both easily adapted to the new forms of electronic communication and reported that iChat, with the ability to see each other while they talked, was much easier than email as a forum to discuss clinical cases. It was interesting that both mentees found it too difficult to type their complex clinical questions but found articulating the questions verbally much easier. Both mentees enjoyed the ability to talk to each other through the monthly videoconference. The ability to talk about issues in common for sole charge therapists was reported to be very valuable.

Difficulties encountered

To avoid network and other technical difficulties, new Macintosh computers with iChat software were used by participants. On two occasions the three-way videoconference was slower owing to server difficulties. There was a technical support person available for any difficulties encountered, although this person was not used throughout the pilot programme. Meetings were set up on a weekly schedule to avoid difficulties logistical and timing issues.

KEY POINTS

- The use of technology may offer a solution to the problem of isolation experienced by health professionals in geographically large and disparate regions.

- An action research approach to examine the implementation and evaluation of a pilot e-mentoring programme for physical therapists in paediatric clinical practice, in a rural area of Canada was undertaken.

- The e-mentoring programme was found to effectively support sole charge therapists, facilitate collaborative learning and collegial discussion and enable reflective learning.

- Further research is needed to establish the optimal organization of this type of programme and to rigorously evaluate the long-term benefits and effectiveness of e-mentoring.

Future considerations

A number of questions arose as a result of conducting this pilot study on e-mentoring. The pilot programme was offered for a finite 3-month period and the immediate impact evaluated. There is, however, a need to determine the optimal organization (for example, duration, use of technology, and ratio of mentees to mentor) of this type of programme and to rigorously evaluate the long-term benefits and effectiveness of e-mentoring. This pilot did not look at the potential benefits of a text-only e-mentoring programme. There were essentially no technological difficulties with the iChat software. However, PC computers are more widely used and therefore the effectiveness of a PC option should also be examined. Lastly, electronic communication requires different communication skills and further research is required to determine strategies that effectively facilitate distance learning interactions.

E-mentoring appears to decrease the clinical isolation experienced by paediatric physical therapists practising in rural areas, and has the potential to harness the experience of near to retirement or retired physical therapists in the role of mentor. It may, therefore, be beneficial to incorporate an e-mentoring programme as part of a provincial strategy to address the physical therapy recruitment and retention issues in the province of British Columbia, Canada.

CONCLUSIONS

The findings of this pilot project demonstrate that an e-mentoring programme can effectively support sole charge or isolated physical therapists in clinical practice. The technology used facilitated collaborative learning and collegial discussion. The skill of the mentor was important in facilitating learning and enabling the reflective process to occur. The e-mentoring relationship needs to be characterized by collegiality and sharing of knowledge between professionals. The importance of discussing clinical and professional issues with another physical therapist was highlighted.

This pilot e-mentoring programme, while of necessity limited in scope, has clearly illustrated the potential benefits to physical therapists working in sole charge positions in terms of supporting continuing professional development, knowledge transfer and retention in the profession. A knowledge transfer strategy has therefore been established to disseminate the findings at professional forums, such as conferences and in-service education and to seek funding support from the provincial government for the implementation and evaluation of a larger scale e-mentoring programme. **IJTR**

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COMMENTARIES

The difficulties of recruitment and retention echo throughout all areas of health-care practice, alongside issues of occupational stress and burnout. Mentoring is widely acknowledged as one strategy for support and professional development that goes some way to dealing with these issues (Megginson et al, 2006). E-mentoring is an especially attractive option for health professionals who are unable to access face-to-face mentoring opportunities because of geographical isolation, as well as time and financial constraints. This article demonstrates how e-mentoring can be a very effective tool for professional development and psychosocial support in the work context.

The authors are right to point out that there are a number of considerations when planning and implementing an e-mentoring programme. While the participants in this particular case study had minimal problems with use of technology and computer skills, this is not always the case (Stewart and Wootton, 2005). E-mentoring programmes will only work if participants are given appropriate access to computers, and supported to develop confidence and skills in using the internet.

Another vital consideration is how mentors are matched with mentees. Traditionally, mentoring programmes are considerably more successful when mentees are able to choose who they have as mentors. The matching process of mentor/mentee is much more difficult to manage in the online environment, particularly when the mentors/mentees are unknown to each other. Therefore attention must be paid to ensure the mentee has as much ability to choose a mentor as possible.

The participants in this article were very motivated to engage with e-mentoring and communicate regularly with each other. However, if one plans to implement a wide-spread e-mentoring programme, one must make allowance for a wide range of attitudes and motivations to computer-mediated communication (Stewart and McLoughlin, 2007). Mentoring training and ongoing support for mentee/mentor has been shown to increase engagement and motivation, especially using mixed-mode communication, such as face-to-face mentoring workshops and follow-up telephone calls (Salmon, 2004).

This article paints a very positive picture of e-mentoring for health-care staff. Nevertheless, uptake of e-mentoring and implementation of a successful programme requires very careful planning and consideration of issues such as internet access, computer skills, matching of mentor/mentee and ongoing support for participants.

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This article raises many good points about the value and benefits to offering mentorship via electronic means, especially to clinicians in isolated, rural or remote locations. I expect that many new graduates in urban situations would benefit from access to a similar mentorship programme because they have many questions related to the steep learning curve in their new job situations.

The action researchers explored the benefits of this 3-month project which occurred as part of the requirements for a Masters physiotherapy degree. It appears that the participants found the experience to be beneficial. It would have been helpful to know what happened afterwards—did the researcher do any follow-up, for instance 3–6 months later? Did the participants keep in touch with each other afterwards to reduce their sense of isolation? Did it make a difference that one mentee participant had 20 years of experience in orthopaedics and therefore was not a new graduate in comparison to the 2nd participant who was a new graduate?

The authors do not explore the implications of sustainability of this type of project which would have been useful, i.e. a Macintosh computer was borrowed but then returned to the university which would presumably create a void for the participant. Another aspect that warrants consideration is the cost of running the programme, specifically around the time commitment of the mentor for the consultation period twice a week. Although it is a wonderful idea, I am not sure if many experts would be available as consultants on a voluntary basis for such an intensive period of time. I suppose that this cost could be included in the workload of the expert somehow if, for example, the remote facility paid the consultant for their clinical expertise?

The particular circumstances of this research project are somewhat unique in that the primary researcher had 24 years of experience and thus could offer the requisite level of expertise, whereas in most situations it is unlikely that students as mentors would have the expertise to offer the level of knowledge required unless they had been doing clinical work previously and come back to university later in life as a mature student. Alternatively it is possible that the primary researcher could have been a student who was supervised during his/her Masters degree by an advisor who was also providing support and advice in this situation.

This research project illustrates the benefits of collaboration between academic units and clinical settings to ensure that theory-practice integration occurs, so that participants can become evidence-based practitioners. This approach has the added bonus of reducing isolation in the field. I congratulate the authors on pursing an innovative idea and hope that there will be funding to support similar programmes in the future.

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