

ORIGINAL RESEARCH

Twenty cultural and learning principles to guide the development of pharmacy curriculum in Pacific Island countries

AN Brown, C McCormack

University of Canberra, Canberra, Australian Capital Territory, Australia

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ABSTRACT

Introduction: A lack of education capacity to support the development of medical supply management competency is a major issue affecting Pacific Islands countries (PICs). Limited human resources and underdeveloped medicines supply management competency are two significant impediments to reaching the health-related Millennium Development Goals in many countries in this rural and remote region. Two recent review publications have provided relevant background documenting factors affecting learning and teaching. These articles have presented available information regarding competency and training requirements for health personnel involved in essential medicine supply management in the region. This background research has provided a platform from which tangible principles can be developed to aid educators and professionals in PICs in the development and delivery of appropriate pharmacy curriculum. Specifically the aim of the present article is to identify culturally meaningful learning and teaching principles to guide the development and delivery of pharmaceutical curriculum in PICs. Subsequently, this information will be applied to develop and trial new pedagogical approaches to the training of health personnel involved in essential medicines supply management, to improve medicine availability for patients in their own environment. This article forms part of a wider research project involving the United Nations Population Fund Suva subregional office, the University of Canberra, Ministry of Health officials and health personnel within identified PICs.

Methods: Two previous reviews, investigating Pacific culture, learning approaches, and training requirements affecting pharmaceutical personnel, were synthesised into a set of principles that could be applied to the development of pharmaceutical curriculum. These principles were validated through focus groups of health personnel using action research methods.



Results: An initial set of 16 principles was developed from the synthesis of the two reviews. These principles were reviewed by two focus groups held in Fiji and the Solomon Islands to produce a set of 20 validated principles. These validated principles can be grouped under the headings of learning theory, structure and design, and learning and teaching methods.

Conclusions: The 20 principles outlined in this article will be used to develop and trial culturally relevant training approaches for the development of medicine management competencies for various cadres of health personnel in PICs. These principles provide a practical framework for educators and health professionals to apply to health-based education and training in the Pacific, with potential application to other rural and remote environments.

Key words: culture, education, learning styles, medicines supply management, Pacific Island countries, pharmacy curriculum.

Introduction

Limited human resources are a major impediment to achieving the health-related Millennium Development Goals (MDGs) in a number of Pacific Island countries (PICs)¹. The International Pharmaceutical Federation acknowledges that healthcare facilities cannot operate without medicines: 'The availability of both medicines and a pharmacy workforce in adequate numbers with appropriate competencies is crucial to ensure the supply, storage and administration of a pharmaceutical system that promotes the appropriate, safe and effective use of essential medicines'². This observation is supported by the Australian Agency for International Development, United Nations Population Fund and the World Health Organization, which report continued problems in maintaining the supply of essential medicines through to the clinics and aid posts of PICs^{1,3-7}.

Appropriate competency-based education is vital in achieving a workforce in adequate numbers and one that is competent to provide pharmaceutical services. The details of the pharmacy education system of the region have been described⁸. In that description it was noted that the Fiji National University and the University of Papua New Guinea are the only universities in the region providing diploma- and degree-level pharmacy education using traditional curriculum with a limited essential medicine supply management (EMSM) component. Further, there is limited formal training available for mid-level cadres who form the majority of the

workforce involved in EMSM. In fact, local universities have transitioned from certificate training to degree-based curricula, leaving an education gap for these cadres⁹.

It has also been noted that EMSM material is often missing from the pre-service curriculum of nursing and other healthcare personnel, while skills in this area are assumed¹⁰. The consequence is that many health personnel lack the skills they require for this essential part of their day-to-day work¹⁰.

The Pacific Islands region has been referred to as the 'blue continent', with its rural and remote status established, having a population of nearly 10 million people inhabiting thousands of islands scattered across 30 million km² of the Pacific Ocean. The Pacific Islands are home to a variety of cultural groups, and the range of country sizes is large – from 1170 in Tokelau to more than 6 million in Papua New Guinea^{8,11}.

The workforce responsible for maintaining the medicines supply system in PICs comprises nurses, midwives, health extension officers, nurse aids and other health personnel at the primary healthcare level (level 1), pharmacy supply health personnel at the provincial level (level 2) and pharmacists and stores managers at the national level (level 3)^{10,12}. The wide range of cadres involved in EMSM in PICs provides a challenge for educators due to the range of educational backgrounds and the variety of knowledge and skills that each cadre requires. This is in addition to the cultural complexity present across the region.



An innovative capacity-building approach has been developed involving a partnership between the United Nations Population Fund Suva subregional office, the University of Canberra, Ministry of Health officials and health personnel within identified PICs (Federated States of Micronesia, Republic of Kiribati, PN, Solomon Islands, Kingdom of Tonga, Tuvalu and Republic of Vanuatu)¹³. The FIP (International Pharmacy Federation)-Pharmacy education Taskforce needs-based approach to pharmacy education and a participatory action research methodology have been used to form the framework for this project¹⁴. This framework is consistent with local cultural norms, and has the effect of meeting the expectations of donor organisations and local ministries of health by providing immediate tangible benefits that can be presented to the global research community. The strategy has as its starting point the need to:

- understand local culture and its impact on learning and teaching
- map competency requirements
- understand currently available information and materials.

Subsequently this information will be applied to develop and trial new pedagogical approaches for the training of health personnel involved in EMSM while supporting the existing systems of the country. Specifically, the aim of this article is to document a set of culturally meaningful learning and teaching principles to inform the development and delivery of curriculum for pharmaceutical health personnel in PICs.

Methods

This study employed participatory action research (PAR) methodology. This type of research focuses on generating new knowledge with the purpose of enabling change. When used in the health sector, PAR is based on reflection, data collection and action that aims to improve health and reduce health inequities through involving healthcare personnel who, in turn, take actions to improve their own circumstances¹⁵. Action is achieved through a reflective cycle, whereby participants collect and analyse data and then determine what

future action should follow. Regionally, aspects of PAR have been used in educating health extension officers on nutrition in the Pacific region¹⁶, and the primary healthcare program in Fiji¹⁷. The PAR methodology chosen in each of these examples differed, reflecting the need to adapt PAR methodology to specific local circumstances in order to maximise the engagement of stakeholders.

The PAR cycle described in this article is the first of five sequential PAR cycles used to develop new understandings of the pedagogical approaches required for culturally appropriate training and education of healthcare personnel in PICs in the area of EMSM¹⁸.

Figure 1 outlines the two-phase approach that was taken, involving:

- identification of key themes and preliminary principles from relevant literature (phase 1)
- validation of principles by health personnel (phase 2).

Phase 1: Identification of key themes and preliminary principles from relevant literature

Two previously compiled reviews were retrieved in full^{8,10}. A subset of papers and reports cited in both reviews was retrieved in full where a more detailed understanding of the theme was needed. The reviews are the most recent publications concerning culture and learning approaches in PICs, with regard to health personnel. The aim of these reviews was to document current available information regarding cultural influences on learning and teaching, competency and training requirements required to develop EMSM competency in healthcare workers in PICs.

Using a process of manual thematic analysis, key themes were drawn from these two reviews. The themes generated were used as an input to develop an initial set of principles to enable clearer application of the concepts by academics and health professionals involved in education. An intuitive process of articulating the preliminary principles was completed by the researchers, based on the themes and the experience of the researchers in adult and health professional education.

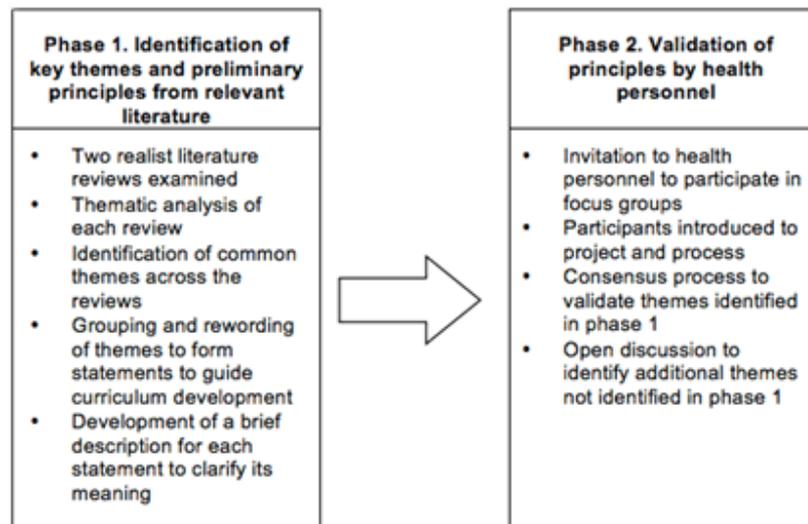


Figure 1: Two-phase process to identify culturally meaningful learning and teaching principles for curriculum development and delivery in PICs.

Phase 2: Validation of themes by health personnel

The principles developed using this method were presented to a focus group in Fiji (eight participants) and in the Solomon Islands (eight participants) for validation. Funding for this project limited the number of focus groups to two. The Solomon Islands and Fiji were the sites chosen because the two countries are currently actively engaged in pharmacy education, and a broad cross-section of relevant stakeholders was available in both countries. The focus groups contained representatives of pharmaceutical health personnel from various levels within the medicines supply system; their supervisors; academics from nursing and pharmacy; and representatives from international non-government organisations, who contribute to essential medicines supply training in the Pacific.

Background to the project was provided, followed by the presentation of the principles derived from the review. Specifically, each principle was presented to the group by the researcher, the background to the principle was explained, the focus group was then invited to comment, and at the

completion of discussion consensus verbal agreement was obtained. This consensus confirmed the inclusion of the principle and the final wording. This was followed by open discussion generated by the principles presented, identifying any further principles. Final consensus statements were documented as a set of validated, culturally meaningful learning and teaching principles to consider when developing curriculum for pharmaceutical health personnel in PICs.

All participants were invited in writing to be part of the focus group and participated voluntarily with explicit freedom to attend or leave the group at their discretion. The invitations clearly outlined the purpose of the focus group, anonymity of the discussion and how the results would be used. No financial incentives or travel reimbursements were given to participants.

Ethics approval

The low-impact nature of the research meant that formal ethics approval was not deemed necessary.



Results

Identification of key themes from relevant literature (phase 1)

Manual thematic analysis of the two reviews identified seven themes (five themes from the first article and two themes from the second) that influenced the development and delivery of curriculum for medicine supply management in PICs.

Article 1 themes: Seventeen full-text articles, 44 reports and 10 books were retrieved by Brown et al. in their review⁸. Identified in their paper were the following five themes relevant to the present study.

Theme 1 – Past regional experiences of health-related training: Data extracted from these articles and reports was grouped under the theme of teacher/teaching characteristics and covered four subthemes:

- *Local personnel as teachers* – where local personnel need to be taught adult learning theory and supported through adequate facilitator manuals and mentoring
- *Teaching specific to each cadre* – where the context of the learner is important, considering individual country variations and workplace needs
- *Teachers as facilitators* – where teachers need to be facilitators of learning using experiential adult learning methods rather than traditional didactic approaches
- *Flexibly delivered teaching strategies needed* – where the aspects of distance and issues of time need to be considered through the use of blended learning methods.

Theme 2 – South Pacific communication style: Children are taught from an early age the importance of hierarchy and of respect for elders; they learn to sit quietly and listen attentively in a group and to show due respect by not

questioning. An indirect style of communication is used, which includes reading of the eyes, silence as a sign of respect, and little or no eye contact¹⁹. Cultural traits demonstrating emphasis of the group over the individual and fostering cooperative methods of problem-solving rather than individual effort were identified^{19,20}. Studies of Solomon Islands culture by Ninnes describes three traditional learning strategies: observation and imitation (eg dancing, weaving, learning to swim, baiting hooks), participation (eg fishing, food distribution, gardening, canoe handling and rituals) and listening (eg conversations, stories and songs for which remembering what is said is deemed a key learning strategy)²¹.

Theme 3 – Historical tensions around curriculum: Current approaches to education predominantly follow historical colonial approaches with little consideration given to the Pacific context, with the ineffectiveness of Pacific education being attributed to the increasing incongruence between the values promoted by formal western schooling, the modern media, economic systems and globalisation on the one hand, and those held by Pacific communities on the other²². To move away from these colonial approaches the PRIDE project was developed. It seeks to enhance student learning in 15 PICs by strengthening the capacity of each Ministry of Education to plan and deliver quality education. This project has developed a set of 10 benchmarks to use when reviewing national education plans: pride in cultural and national identity; skills for life and work in a global world; alignment with national development plans and regional and international conventions; access and equity for students with special needs; partnerships with communities and stakeholders; a holistic approach to basic education; realistic financial costing; use of data in educational planning, effective capacity building for all education personnel; and a framework for monitoring and evaluation²³. The project is ongoing, with continued tension between the traditional ‘colonial’ methods and a desire to bring a Pacific identity to education.

Theme 4 – Challenges of open and distant education in the Pacific: Direct research in this area is limited, but



although a positive approach to this mode of teaching is clear from the articles presented in the review, significant geographical, technological and social barriers limit its use in Pacific rural and remote environments. Schofield summarises the main message by suggesting that a deep understanding of the Pacific cultural context, a consideration of indigenous social structures, economic and political, and the need to focus education and training on capacity-development are seen as core to the successful implementation of open and distance learning²⁴.

Theme 5 – South Pacific learning style: Various learning style inventories (formal survey tools used to determine the level of engagement or style of student learning) and their adaptations have been used as tools to study South Pacific students' learning styles. These include: Biggs' Study Process Questionnaire, and Entwistle & Ramsdens' Approaches to Studying Inventory^{25,26}. Although results varied, a 'deep' approach (deep level of understanding of a particular topic to learning) was documented within Pacific Island students^{27,28}. Historically it has been suggested that PIC learners lacked the capacity for deep learning²⁷. Health personnel involved in medicines supply management need to have a deep understanding of the 'why' in regard to their competency development, as many tasks are routine in EMSM, often without an immediately obvious application.

Article 2 themes: Two themes emerged from an analysis of the second review¹⁰. These themes were generated from the 37 reports retrieved by the review with no research papers, systematic reviews or other scientifically rigorous paper retrieved.

Theme 6 – Competencies required for EMSM: Three competency frameworks from the grey literature were the only documents retrieved from the review relevant to this theme and only documented higher domain competencies with no specific reference to EMSM²⁹⁻³¹. This scarcity of information documenting the competencies required by health personnel for EMSM suggests a need for a comprehensive approach to competency mapping to aid future competency development.

Theme 7 – Education and training as it relates to EMSM: Thirty-seven reports were assessed in generating this theme, with a report by Smith providing the most meaningful insights. Smith's review of pharmacy assistant/technician training in Fiji in 2006 resulted in a number of recommendations aimed to better align training for pharmacy assistants/technicians to their more practical work-based practice³⁰. Recommendations 5, 6, 7 and 8 are relevant here³⁰:

- *'Recommendation 5 – Fiji School of Medicine (now Fiji National University) review its Diploma in Pharmacy to ensure that its entry criteria and curriculum content meets the training and competence to practice needs of the Pharmacy Technicians.*
- *Recommendation 6 – Ministry of Health develop a workplace-based structured training programme and assessment processes to ensure Pharmacy Technicians (current and future) are competent to practice when they seek registration as Pharmacy Technicians.*
- *Recommendation 7 – FSMed [Fiji School of Medicine] develop a short certificate course with entry criteria and curriculum content that meets the training and competence to practice needs of Pharmacy Assistants.*
- *Recommendation 8 – The Ministry of Health develop a workplace-based structured training programme and assessment processes to ensure Pharmacy Assistants (current and future) are competent to practice'.*

Nine subthemes relating to education and training were extracted from the reports reviewed in this second review and are summarised in Table 1. These subthemes present a clear message from health personnel involved in the delivery of health services in PICs calling for specific actions to make training approaches relevant and sustainable. In this article it is demonstrated that the interest and concern shown by health personnel involved in EMSM within PICs can be used to validate a set of culturally meaningful learning and teaching principles for curriculum development.



Table 1: Nine subthemes of theme 7, ‘Education and training as it relates to essential medicine supply management’¹⁰.

Subtheme	Brief explanation
1. The need for training is clear.	The need for training in the area of essential medicines supply and rational use of medicines across various cadres of healthcare worker (including pharmacists, pharmacy assistants and nurses) is clearly expressed by PICs.
2. An individual country approach is desired.	PICs have requested a needs-based approach to training according to the requirements of their country based on appropriate health workforce plans. These plans should consider cadres from chief pharmacist through to pharmacy assistants in relation to pharmacy services, what kind of pharmaceutical services are supplied by government, and what competencies are required to provide those services within PICs.
3. A systematic approach to human resource management is desired.	Human resource management needs to consider availability of appropriately funded posts, recruitment practices, staff retention principles (including career progression, ongoing training, consideration of family, professional recognition) and registration of staff (including less professional cadres, eg pharmacy assistants/technicians).
4. Support from regional institutions requested.	PICs have expressed a desire for support from regional teaching institutions and donors to provide support for local training needs.
5. The approach to training needs specific features.	Training materials need to be flexible in their delivery in relation to time and approach; be applied to the local environment; involve local senior staff where possible; be competency/skill based (on-the-job training); consider cultural aspects of learning and teaching; be conducted in the local country where possible; and involve the use of local tertiary institutions where available and useful.
7. A collaborative regional workforce is ideal.	A regional approach to workforce flexibility has been expressed as desirable. Registration of pharmacy assistants and training courses will help to demonstrate and improve consistency of competency/skills and materials. This may also enable larger PICs to help smaller ones in times of staff shortages, etc.
8. A review of available training materials is essential.	PICs have requested a review of available training materials. There are a variety of training materials available in the region for the various healthcare personnel involved in EMSM. Little evidence exists to determine if these materials address local competencies sufficiently; if the style of training is suitable to PIC learners; whether the materials are general in nature or specifically applied to a local environment; the skills required of the presenter to make the material effective; and, if appropriate assessment is provided to determine if competencies are achieved.
9. NGO parallel programs should work to integrate into PIC structures.	Existing non-government organisations such as the malaria program, UNICEF, UNFPA, HIV/AIDs have procedures that are not routinely integrated into existing PIC essential medicines systems. Having these programs better integrated into the existing standard treatment guidelines, essential drugs lists and associated essential medicines supply systems would help strengthen these existing systems.

EMSM, essential medicine supply management. PIC, Pacific Island country

Articulation of preliminary principles (phase 1)

Table 2 shows the 16 preliminary principles articulated by the researchers and identifies the themes used as an input to each principle.

Validation of principles by health personnel (phase 2)

The two focus groups conducted in Fiji and the Solomon Islands validated the initial 16 principles put forward by the researchers and identified a further four principles. Table 3 notes the four additional principles proposed by the focus groups.



Table 2: Sixteen preliminary principles articulated by the researchers

Original linking theme [†] from review	Principle
Theme 5 – A distinct South Pacific learning approach	1. Students have skills for critical thinking and a deep approach to learning
Theme 5 – A distinct South Pacific learning approach	3. Create a framework where students are encouraged to think critically and apply learning
Theme 2 – The impact of South Pacific culture on learning styles Theme 3 – The impact of external factors on curriculum Theme 1 – Past regional experiences of health related training	4. An individual country approach is desired
Theme 1 – Past regional experiences of health related training	5. Training should seek to integrate vertical programs
Theme 2 – The impact of South Pacific culture on learning styles	6. Create sufficient flexibility to be inclusive of the different systems that are used across the region
Theme 2 – The impact of South Pacific culture on learning styles Theme 3 – The impact of external factors on curriculum Theme 6 – Competencies required for EMSM	7. The content of training should reflect the competencies required
Theme 7 – Education and training as it relates to EMSM	8. Consider the role of assessment to ensure the development of skills and competencies
Theme 7 – Education and training as it relates to EMSM	9. More attention should be given to the way material is presented, delivered and assessed
Theme 2 – The impact of South Pacific culture on learning styles	10. The approach to training needs specific features: flexible delivery, involve local staff, consider ‘The Pacific Way’
Theme 2 – The impact of South Pacific culture on learning style	11. Encourage group activities
Theme 1 – Past regional experiences of health related training	12. A Gunning Fog Index [‡] of 7–8 is ideal
Theme 1 – Past regional experiences of health related training	13. Be consistent with the use of technical jargon
Theme 1 – Past regional experiences of health related training	14. Consider ease of use and easy reference when developing materials
Theme 2 – The impact of South Pacific culture on learning styles	15. Use PIC localising features: diagrams, pictures, examples
Theme 7 – Education and training as it relates to EMSM	16. Include exercises to allow learners to apply their learning to day-to-day tasks in their workplace

[†] Themes 1–5 relate to the first review article and themes 6 and 7 to the second article

[‡] Obtained from a test designed to measure the readability of a sample of English writing
EMSM, essential medicine supply management. PIC, Pacific Island country

Table 3: Four learning and teaching principles added by focus groups

1. Training in adult education principles and presentation skills should be considered for local staff
2. Seek disciplined and motivated participants to be trained
3. Assess the trainee’s level of education and experience, pitching the level of training appropriately
4. Detailed facilitator’s manuals should be made when training materials are developed

Discussion

This article has built on two reviews that document the available information regarding cultural influences on learning and teaching in PICs and the known information regarding competency and training requirements for healthcare workers involved in EMSM^{8,10}.

The 20 validated principles presented in this article (Table 4) represent aspects of curriculum development and learning and teaching considered important by pharmaceutical health personnel in PICs. These principles can be grouped under the headings of learning theory, structure and design, and learning and teaching methods (Table 4). The 20 principles validated in this research are underpinned by learning theory,



they recognise cultural context, and they reflect rural and remote issues that warrant further discussion.

Principles underpinned by learning theory

Learning is not only about acquiring knowledge. Learning occurs when someone knows more or can apply existing knowledge in a new way. Effective learning creates curiosity, self-confidence and self-awareness with respect to knowledge and how that knowledge is acquired and applied. Successful learning can improve the development of skills so that the knowledge an individual possesses can be used to good effect³². Principles 1–3 (Table 4) recognise the need to expect and plan for deep learning. For example, principle 3, ‘Create a framework where students are encouraged to think critically and apply learning’, requires the facilitator/teacher to consider the construction of curriculum to challenge the learner, with the understanding that learners need to recognise the relevance of their learning in order to engage in it. A didactic approach that simply gave the learner a set of facts or instructions would not be as effective.

Theories of adult learning are based on the unique characteristics of adults as learners. For example Knowles’s theory of adult learning suggests that effective teaching begins with where the students are in their current understanding, and adults learn faster when what they are studying has an immediate effect on their present life³³. That is not to say that the educator cannot change the students’ intellectual whereabouts by providing new information to them, only that the provision will be more effective if it builds on the foundation of interests and understanding already in place^{32,33}. Principles 11, 12, 18 and 19 (Table 4) reflect this position.

More recently, Abela contested that Knowles theory of adult learning fails to mention reflection and extrinsic motivation, especially the role of the educator as a major source of motivation for the learner³⁴. Abela suggests that Mezirow’s concept of transformative learning, which appears more appropriate when considering medical-related education³⁴. This type of learning ‘aims to effect change in established reference points used by the adult learner. These frames of reference are the meanings that people give to experiences, and the structures to arrive at such meaning.’³⁴. Transformative learning allows learners to question

and reflect on their own assumptions and those of others³⁴. Principles 3, 10, 16, 18 and 19 (Table 4) point to components of transformative learning.

Biggs takes the approach of transformative learning one step further by pointing out that ‘the educator’s job is to organise the teaching/learning context so that all students are more likely to use the higher order learning processes.’³⁵. Biggs suggests a constructivist approach aligning learning objectives, context, learning activities and assessment to achieve the best learning outcomes using problem-based learning and learning portfolios as examples³⁵. Principles 9, 11, 17 and 20 (Table 4) not only capture this approach but also detail the importance of increasing the understanding of adult learning theories by local educators.

Using a variety of interactive learning methods is seen as important to foster adult learning in this context. There are many references in the literature to the use of novel interactive learning methods to educate both students and professionals in the health sector. Some examples include games to teach tuberculosis control in health workers^{36,37}, board games for pharmacy students to learn metabolic pathways³⁸ and a game to influence pharmacy student attitudes toward older adults^{39,40}. Principles 5, 7, 8, 9, 14, 18 and 19 (Table 4) lead to the use of interactive learning methods, often reflecting workplace activity and the need to consider cultural contexts.

Principles recognising cultural context

The importance of Pacific culture and workplace culture is emphasised in the 20 principles, and although the principles were not weighted in this study, principle 4 (an individual country approach is desired), principle 10 (the approach to training needs specific features: flexible delivery, involve local staff, consider ‘The Pacific Way’), and principle 18 (include the use of PIC localising features: diagrams, pictures, examples) featured most predominantly in focus group discussions. Focus group participants lamented the use of ‘drop in’ educational products from other regions, often seeing them as irrelevant to their context, with organisations delivering such approaches sometimes seen as not caring for their ‘Pacific’ concerns.



Table 4: Twenty validated principles for learning and teaching in Pacific Island countries, by learning theory, structure and design, and learning and teaching methods

Learning theory
1. Students have skills for critical thinking and a deep approach to learning
2. Use student-centred learning that challenges 'rote learning' but promotes 'deep learning'
3. Create a framework where students are encouraged to think critically and apply learning
Structure and design
4. An individual country approach is desired
5. Training should seek to integrate vertical programs
6. Create sufficient flexibility to be inclusive of the different systems that are used across the region
7. The content of training should reflect the competencies required
8. Consider the role of assessment to ensure the development of skills and competencies
9. More attention should be given to the way material is presented, delivered and assessed
10. The approach to training needs specific features: flexible delivery, involve local staff, consider 'The Pacific Way'
11. Training in adult education principles and presentation skills should be considered for local staff
12. Seek disciplined and motivated participants to be trained
13. Assess the trainee's level of education and experience, pitching the level of training appropriately
Learning and teaching methods
14. Encourage group activities
15. A Gunning Fog Index [†] of 7–8 is ideal
16. Be consistent with the use of technical jargon
17. Consider ease of use and easy reference when developing materials
18. Include the use of Pacific Island country localising features: diagrams, pictures, examples
19. Include exercises to allow learners to apply their learning to day-to-day tasks in their workplace
20. Detailed facilitator's manuals should be made when training materials are developed

[†] Obtained from a test designed to measure the readability of a sample of English writing

The term *Pasin bilong Pasifika* ('The Pacific Way') was first used by Ratu Sir Kamisese Mara in 1970 and although it carries a core of basic ideas and a range of meanings according to context, it is identified as encompassing an assumption that all islanders are brothers and share a unique identity together⁴¹⁻⁴³. Other key features of this concept include oral or verbal communication rather than written, talking things over, flexibility and adaptation. These cultural and individual workplace issues clearly come through in principles 4, 6, 7, 9, 10, 14 and 18 (Table 4).

Principles reflecting rural and remote issues

With 80% of the population of PICs residing in rural and remote environments, the ability to provide relevant education to the healthcare personnel in this context is clear, and similar to that required in other remote environments (eg central Australia). The limited availability of healthcare

personnel in many PICs means that if these key personnel are removed from their practice then service delivery and patient care are affected. Research conducted in Vanuatu suggests that health personnel involved in medicines supply at the primary care level can be absent from their workplace for up to 9 weeks a year, attending in-service health-based training¹². Therefore, principles that promote education and training in the workplace (principle 9) are to be encouraged. More attention should be given to the way material is presented, delivered and assessed (principle 10) and to limiting the number of trainings (principle 5). This needs to be balanced against the desire to be educated in a group context (principle 14). Providing education to healthcare personnel in remote and rural environments is complex and must involve direct input from intended recipients in the design and delivery of materials to ensure local requirements are met.



Conclusions

Currently, there is no published research in the area of best-practice pedagogical methods for teaching EMSM competencies for mid-level cadres involved in medicines supply in PICs. The themes from two reviews have been used to develop a set of 20 validated principles to consider when developing and delivering curriculum for pharmaceutical health personnel in PICs. As the validation process used was limited to experts from Fiji and the Solomon Islands, further validation will be required to determine wider application to other PICs.

The 20 principles outlined in this paper will be used to develop and trial culturally relevant training approaches for the development of EMSM competencies for various cadres of health personnel in PICs. These principles provide a practical framework for educators and health professionals to apply to health-based education and training in the Pacific, with potential application to other rural and remote environments.

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