

Health and Physical Education literature review

Senior syllabus redevelopment

Prepared for Queensland Curriculum and Assessment Authority by:

Associate Professor Anthony Rossi, Faculty of Health, School of

Exercise and Nutrition Science, Queensland University of Technology

February 2016

© The State of Queensland (Queensland Curriculum and Assessment Authority) 2016

Queensland Curriculum and Assessment Authority

PO Box 307 Spring Hill QLD 4004 Australia

Level 7, 154 Melbourne Street, South Brisbane

Phone: +61 7 3864 0299

Fax: +61 7 3221 2553

Email: office@qcaa.qld.edu.au

Website: www.qcaa.qld.edu.au

Contents

Executive summary	1
Overview of methodology and findings	1
Summary of recommendations	3
1 Subject group: Significant emerging trends	4
1.1 Assessment	4
1.2 Pedagogical approaches	7
1.3 Implications for the revision of Queensland syllabus documents in the subject group	9
1.4 Recommendations	10
2 Subjects in the group: Overview, comparison and connections	12
2.1 QCAA syllabus documents and VET qualifications	12
2.2 Recommendations	13
2.3 Comparable syllabus documents from selected Australian and international jurisdictions	14
2.4 Recommendations	19
2.5 Connections with the Australian Curriculum	20
2.6 Implications for the revision of Queensland syllabus documents in the subject group	20
2.7 Recommendations	20
3 Learning expectations	21
3.1 Scope of learning across Australian and international jurisdictions	21
3.2 Recommendations	27
4 Future focus: 21st century skills	29
4.1 Implications for the revision of Queensland syllabus documents in the subject group	30
4.2 Recommendations	31
Bibliography	32

Executive summary

Syllabus documents comprising the Health and Physical Education subject group

Authority syllabuses	<ul style="list-style-type: none">• Health Education 2010• Physical Education 2010
Authority-registered syllabuses	<ul style="list-style-type: none">• Recreation 2014
VET qualifications	<ul style="list-style-type: none">• CHC10212 Certificate I in Active Volunteering• CHC20212 Certificate II in Active Volunteering• CHC30612 Certificate III in Active Volunteering• SIS10113 Certificate I in Sport and Recreation• SIS20313 Certificate II in Sport and Recreation• SIS30513 Certificate III in Sport and Recreation• SIS20213 Certificate II in Outdoor Recreation• SIS20113 Certificate II in Community Activities• SIS20412 Certificate II in Sport Career Oriented Participation• SIS20513 Certificate II in Sport Coaching

Overview of methodology and findings

This subject group is relatively small and is currently dominated by the two Authority syllabus documents. As the area grows and diversifies, this may change. Careers available through the VET sector offerings are growing but tend to be subject to funding arrangements. Coaching is a small area of full employment but there is potential for growth. The contribution that the dominant syllabus documents make to university entrance scores make them popular and, in the case of physical education, the cultural capital of sport in Australia ensures its current success. Future megatrends in the economy, in sport, in leisure and in health may see these trends shift. Any revision of the syllabus documents should bear megatrend data in mind.

Not surprisingly, all the jurisdictions reviewed bear an inevitable similarity in content, if not structure and organisation, to Queensland. Primarily, this is because the field, particularly in physical education, is constituted in certain (generally agreed) ways where privileged knowledge is considered essential. In addition, the global interconnectedness of university academics likely to serve as advisers on syllabus documents in all jurisdictions inevitable means there is some level of agreement. The academic community in this field in Queensland is not only very well connected, but greatly respected. However, sameness and familiarity does not necessarily lead to excellence. There are important aspects about how this field is delivered to senior school students in Queensland that should be retained because they are unique. Specifically, how the knowledge base that underpins the subject area is both integrated and personalised, regardless of whether this is done well or not is an important feature of the Queensland approach.

An environmental scan was undertaken of the following Australian jurisdictions and international syllabi.

Australian jurisdictions

New South Wales — Board of Studies Teaching and Educational Standards NSW (BSTES)

Victoria — Victorian Curriculum and Assessment Authority (VCAA)

Western Australia — School Curriculum and Standards Authority (WACE)

(<http://wace1516.scsa.wa.edu.au/>).

International

AQA, UK (<http://www.aqa.org.uk/subjects>) — (formally the Assessment and Qualifications Alliance)

AQA is an awarding body in England, Wales and Northern Ireland. It compiles specifications and holds examinations in various subjects at GCSE, AS and A-level and offers some vocational qualifications.

Ontario Ministry of Education, Canada (OME)

Ontario was selected because of the structure of secondary education (Years 9–12), its willingness to embrace physical literacy as a concept and the integrated nature of the subject area.

Ministry of Education New Zealand (<http://seniorsecondary.tki.org.nz/>)

New Zealand was chosen for its unique structure for senior secondary schooling and because it has a genuinely national curriculum with tuition in both English and the Māori language. New Zealand's performance in international tests is comparable to that of Australia.

Summary of recommendations

Queensland compares well with total jurisdictions across the totality of this subject area. The similarities were predictable and this is addressed above. Within the physical education context, all jurisdictions rely on time-honoured concepts related to how skill is acquired (or rather how skilled performance is produced and how it eventually improves). No jurisdiction has been prepared to venture away from the Fitts and Posner (1967) model of stages of skill acquisition (or stages of learning) even though stage theory has been challenged across a number of years as being over deterministic. As to whether syllabus reviewers in Queensland change this perspective, is a matter for discussion. What this review shows is the homogeneity in the field. Hence, the point of differentiation is how the knowledge is organised and then integrated. This is the strength of the Queensland approach and it should be retained.

The approach to assessment as a consequence of how knowledge is organised is also a feature of the Queensland approach and should also be retained. This does seem to encourage a student centred approach to learning though it should be acknowledged that all jurisdictions make this claim.

There are some important lessons from the review that are worthy of consideration. These are referred to throughout the document but in summary:

- The New Zealand approach to Health Education (even though it is integrated) is worthy of consideration.
- The Ontario approach that integrates physical and health literacy is of interest. It is not advocated that this is necessarily followed but there may be useful insights from this approach.
- The United Kingdom approach should be avoided.
- Many jurisdictions have attempted to be content heavy with less application — this is not recommended.
- The Figueroa Framework may have lost its impact — this could be worthy of revision.
- Western Australia's approach to the study of Recreation, at a time of increased interest in and commitment to environmentalism may be worthy of consideration but there would be resource issues associated with this.
- As Queensland moves to part external assessment, which may include externally administered exams, the best assessment mix should be considered seriously. It is recommended that the United Kingdom model is avoided.

1 Subject group: Significant emerging trends

1.1 Assessment

New South Wales

Internal and external assessment — mark awarded by the school plus HSC examinations in PDHPE — is meant to ‘assist’ student learning as well as provide feedback about the quality of coursework undertaken by students. This is almost a statement about the nature of pedagogy and in the absence of a pedagogical statement it almost has to stand as one (see pedagogical approaches). Grades and marks are assessed against a scale and this is Standards Referenced, but the assessment of work is ongoing allowing a developmental approach to student work and effort. This enables schools to localise their assessment techniques and approaches to ensure variability and weighting is both evenly spread, and equitable across students.

The HSC examination is considered to be highly valid and reliable.

Victoria Units 1, 2, 3 & 4

Similarly internal and external assessment procedures are used, though this jurisdiction assesses coursework in a more ongoing and regular fashion and these are folded into the teaching and learning activities as part of the unit design. These assessment activities are required to be completed in class time. Hence they are centrally designed more as a pedagogical process. The VCE also uses formal assessment tasks, largely project or task based, that can be completed away from the classroom and represent the ‘extra’ work one might expect from senior school students. There is a range of assessment tasks that may be chosen — the requirement is that they only adhere to VCE expectations of assessment design and be concerned with issues of fairness, validity and reliability. The list of possible ‘types’ of assessment activities is made available by the VCAA. All unit 1 & 2 assessment (year 11) is administered at the school level — for units 3 & 4 the assessment activities are set but the school can choose which to use based on program design, choice of physical activities in the case of PE and the learning objectives associated with those activities — there are some similarities to Queensland in this regard.

There is a monitoring process that makes judgments about the quality of programs offered at the senior level in Physical Education and Health.

Western Australia

WA also makes use of school based assessment where the tasks are designed by teachers in schools but where there must be demonstrable outcomes associated with the requirements of the course. WA also makes use of external examinations where a mark out of 100 is awarded — this is combined with school-based assessment and is therefore consistent with the other

jurisdictions. There are far more statements about integration of coursework that serves a range of ends (such as VET courses). Guidance is provided on how to both deliver integrated courses in this subject area and how they may be assessed. As for Queensland, there is a highly developed moderation process. A student's final mark in the subject is a combination of the school based mark and the examination — the school-based mark is thoroughly moderated and standardised before being added to the examination score. Grades A–E are used.

United Kingdom

Programs in the UK follow a similar disciplinary knowledge structure based on bio-physical and socio-cultural knowledge — programs also seek to ensure students understand the role of technology on the consumption of and participation in physical activity and sport.

AS (Advanced & Special) and A (Advanced) levels courses are designed to determine university entrance — rather than simply a school leaver's score. While A-levels have traditionally been assessed by external examinations (designed and set by an Examination Board — now by privatised entities), there are in practical subjects including Physical Education, non-exam assessment — and this is of the practical components of the course — both at a performance level and a performance analysis level.

Health Education at the senior level is to be discontinued.

Ontario, Canada

Statements about assessment are framed by fairness and equity with particular reference to different groups represented throughout Canada — particularly Canada's Indigenous nations. Whilst the program aims to develop work and life habits these are not assessable. The program is based on a broad physical/health literacy agenda, which is popular in Canada, more so than Australia, though physical literacy is growing in popularity in some states and through some advocates. The year range for senior study is 9–12 sometimes indicated as senior high school.

Assessment is structured around an achievement chart (AC) (standards) provided by the province (each province is independent in the delivery of education — similar though not exactly the same as Queensland. The AC is aimed at equity and standardisation and is seen as a way of helping teachers use assessment for learning and assessment as learning — in other words, assessment is as much a pedagogical process as it is a process of evaluation. Students must accomplish content standards (i.e. coverage of subject knowledge in accordance with the required curriculum) and performance standards and these are levels of achievement.

Assessment is school based and is concurrent. The broad categories of assessment are similar to Queensland (*Acquire, Apply, Evaluate*), but are informed more by Physical & Health Literacy rather than by Peter Arnold's (1988) ideas of learning in, through, and about physical activity/movement. This may be as much to do with the integration of Health and Physical Education across years 9–12, which is structurally different to other jurisdictions in this report.

New Zealand

The detail provided by the NZ jurisdiction in its documentation is extensive, though details of the senior structure are less revealing and it is necessary to visit the NCEA website for details on the potential outcomes of senior study in NZ. The program is structured around four strands:

1. Strand A: Personal health and physical development
2. Strand B: Movement concepts and motor skills
3. Strand C: Relationships with other people
4. Strand D: Healthy communities and environments.

This has some similarities with Queensland even if the language is different. Interestingly, the Senior NZ program has a great similarity with the Australian Curriculum HPE. The points of connection should not be surprising — there is a strong relationship between the HPE academic communities in both countries, particularly through the HPE Special Interest Group (SIG) at the Australian Association for Research in Education (AARE). Additionally, senior secondary education is considered to be across years 11–13 — that is, three years of senior — hence similarities to the Australian Curriculum HPE are all the more likely given the overlap of junior and senior.

It is indicated that PE learning occurs across all strands but other areas associated with the subject area are specifically located in particular strands (areas such as Home Economics and Health Education). Performance across these strands contributes to the *National Certificate of Educational Achievement* (NCEA) — not dissimilar to the current Overall Position (OP) rank in Queensland or the HSC in New South Wales. In other words, it provides a mechanism for both a school leaving statement and university entrance score. The NCEA is sub-divided into three levels and is likely to include a range of assessment activities including external examinations and internally organised assessment activities that might carry different level credits according to the ‘standard’ (area of the subject) to which they apply. As with most jurisdictions, there is a minimum level required to pass each area within any subject area and there is a minimum requirement (of 80 credits) across all areas of study that a student undertakes across the three years. The students are differentiated according to the overall standards they achieve across the 80 credits. Whilst examinations are externally controlled, there is great store set by the internal assessment mechanisms that seek to use authentic assessment activities such that the ideas can be seen as translatable to the real world. Importantly, the NCEA has global recognition. In spite of this, some schools offer the International Baccalaureate (IB). However, the areas of study within the IB are more limited.

1.2 Pedagogical approaches

The trends noted in pedagogy can be categorised as procedural. There is little to no theorising of learning and its association with pedagogy. Rather, there are lots of statements that refer to the types of skills and competencies that should be developed in children. Hence reading about pedagogy in the collected documents is a somewhat dull affair. In addition, it needs to be noted that most statements about pedagogy are framed by the language of knowledge acquisition, knowledge retention, and knowledge evaluation. Hence, though assessment is regarded as *part* of the learning process, the language tends to suggest that it is the *driver* of pedagogical processes.

New South Wales

Statements related to pedagogy are lists of competencies to be achieved within stage 6. These are identified as real-life or real-world skills and the delivery of the content is meant to develop the competencies. Little else is said about pedagogy in direct terms. The documentation talks about how the key competencies are *embedded* in the syllabus. However, there is little meaning attached to this statement.

Victoria

Victoria's documentation contains greater detail but again the emphasis is related to assessment rather than pedagogy. Hence again statements related to the nature of assessment being part of the pedagogical process are prevalent. As a consequence, there is a strong focus on descriptors of performance and outcomes of student engagement. There is at least reference to aligning the learning activities with the learning styles of the students, thereby implying (though not expressly stating) that learning needs to move towards individualisation.

Western Australia

For Western Australia there are much stronger statements about integration of theory and practice (commensurate with Queensland), and how learning activities should be broad and diverse. There is a definitive statement about how learning in this area cannot be separated from the active participation in movement (most commonly but not exclusively sport activities). After this, however, there are further lengthy statements about capabilities and lifelong skills and competencies that are supposedly delivered through this subject area.

United Kingdom

There are no details about pedagogical strategies or approaches listed. This may be because teachers have absolute freedom, or because the expectations are rigid and controlled and have more to do with the transfer of information. The traditions of A-levels are closer to the latter. However, since the United Kingdom has a strong history of PE pedagogy, it seems strange that there is no advocacy at all.

Ontario, Canada

This jurisdiction offers the most explicit statements about pedagogy. First, its diagram of active-living skills orientates the program of study. There are then statements about *Effective Teaching*. This includes the following, 'teachers need to consider what they want students to learn, how they will know whether students have learned it, how they will design instruction to promote the learning'. The documentation then goes on to talk about what research says about 'instruction' (a term preferred to pedagogy). So, for example, the benefits of using direct or explicit teaching are laid out clearly, though research references are not made; however, various riders and appendices do contain reference material. There is a thinly veiled description of Vygotsky's (1997) idea of the Zone of Proximal distance but this is neither explicit nor referenced. There are explicit statements about mixed ability and gender classes. Finally, there is reference again to the real world/life skills that need to be and should be developed throughout the delivery of content material.

New Zealand

Again there are statements about skills and capabilities that should be developed through the delivery of content and this needs to be done 'effectively'. Other things that are emphasised, that do not appear explicitly at any rate in other documents studied are supportive environments, reflective practice, and connections across different knowledge sources and sub-disciplines. A distinguishing feature of the New Zealand documentation is a strong connection to and explicit use of Shulman's (1987) notion of Pedagogical Content Knowledge. This at least provides strong evidence that pedagogy is something that is thought about at the policy level rather than just something that is assumed to happen. As with other jurisdictions, the profound influence of assessment on what stands for teaching is obvious.

1.3 Implications for the revision of Queensland syllabus documents in the subject group

There are only modest implications for any revision of Queensland syllabus documents. The level of sophistication in the assessment processes in Queensland (compared to other in school assessment procedures) seems to surpass other jurisdictions largely because of the explicit intent to integrate the various knowledge areas that constitute the field. However, as Queensland moves to external assessment and the possible use of external examining bodies, important decisions will need to be made. Whilst some of this is procedural (percentage of marks allocated to tasks etc.), some of the changes may bring about adjustments to the depth of knowledge required. This is a broader question and is difficult to answer in this review. However, these issues will have a bearing on decision-making. As it stands, the Queensland documents provide a holistic direction for the study of this overall field.

Pedagogically, there is in reality probably little that separates all the jurisdictions. There are many claims of student centred, inquiry-based approaches to pedagogy. This seems to be less explicit in the United Kingdom, which in spite of a long tradition of student centred learning in this field has tended towards the conservative when it comes to senior school programs (A and AS level qualifications). There are potentially some interesting lessons to be learnt from New Zealand, particularly in how Indigenous knowledge is drawn into the pedagogical process. Ontario's position of using physical literacy as an organising principle is also worth looking at especially as it is articulated with health literacy, which is central to the AC HPE.

1.4 Recommendations

Recommendation 1

Ensure the capacity for integration is retained — this is a great strength of the Queensland approach to senior study in this broad subject area. The Victorian and Western Australia jurisdictions are explicit about this facet of learning as being valued and is mirrored in assessment approaches similar to Queensland. In New Zealand, there are also explicit statements about integration, particularly as it relates to the health of individuals and communities. This is a strength of the New Zealand program. As it is a combined program in New Zealand, simplistic comparisons should be avoided. However, there was enough to suggest that there is knowledge integration across the whole program that is commensurate with the intentions of Senior PE *and* Senior Health in Queensland. This is reflected in the broad assessment strategy of assessment in New Zealand that includes all communicative modes.

The NSW jurisdiction is not as explicit in this. It lists key competencies (as a general statement) that are to be embedded in the PDHPE Stage 6 syllabus. It is not particularly clear how these are to be integrated. In other words they are not tied to, say, content but rather are considered more broadly. Much of the documentation is about standards rather than processes. In New South Wales the examination structure (external) is heavily prescriptive and this is similar to 'A' levels in the United Kingdom. Whilst not absolutely clear from the documentation audit, this does suggest a separation of knowledge rather than its integration. The explicitness of the Queensland approach to integration and then how this plays out in terms of personalisation appears to be more obvious, and this has the capacity to be more demonstrable through the eclectic approaches to assessment. Examples of assessment items from New South Wales can be sources from the Internet and these items do suggest knowledge integration and to some extent personalisation. However, it is not as explicit in the documentation or in the assessment descriptions at the syllabus level.

Recommendation 2

Look at best external examination practices, though it is recommended here that the UK model is avoided as explained below.

In the United Kingdom, the practical assessments are not as diverse as Queensland (only 2 are required from 11). Thirty percent of the final grade is allocated to this and this is split 20% performance and 10% for an action plan (which is meant to be for 10 weeks). It may well be that integration occurs in the 10% action plan but this is not clear. Even if this were the case, it is a small allocation of marks for what is a central pillar of what it means to be physically educated. The central concern in the UK model is for 'performance' — what Peter Arnold (1988) might call 'learning in'. Arnold's (1988) other two learning domains (about and through) are not as obvious within the motor domain. The practical work is internally marked and externally moderated.

This also means that 70% of the final grade is allocated to two exam papers, both two hours long. The exams are externally set and marked. Examples of these papers reveal that biophysical knowledge is privileged over any other. Moreover, in the 2015 exams series there were questions on Whiting's (1987) model of skill acquisition and on the Yerkes & Dodson (1908) law (Inverted) U hypothesis. These carry small mark allocations, admittedly, but it is discipline knowledge that by many is considered out of date.

Recommendation 3

Consider some of the approaches to health knowledge within the New Zealand model.

The use of the principle of 'Hauora' — an approach to total health or wellbeing is a defining feature of the New Zealand program. It includes physical, mental and emotional, spiritual, and social health and wellbeing. It is likened to the four walls of a 'Whare' (a meeting house). It is distinctly Māori and therefore unique to New Zealand/Aotearoa. There is potential to draw on aspects of Australia's Indigenous cultures when thinking more broadly about health and what it means to be healthy. The complexity, however, of this culture would offer challenges in this regard. What is clear for the New Zealand documentation is that a broad idea of health is developed that includes World Health Organization (WHO) data and direction about healthy living, and which is assessed in multiple ways using a wide range of written and oral media. Two important facets are worth noting: assessment is student centred (but is underpinned by the curriculum); and assessment capability is built rather than assumed to already exist. The idea of building capability is to enable students to progressively take greater responsibility for collecting, interpreting and using information not only about learning curriculum content but also about the nature of their own learning. As a reflexive approach to developing capabilities around health and healthy living, this is worthy of note.

2 Subjects in the group: Overview, comparison and connections

2.1 QCAA syllabus documents and VET qualifications

General observations

There seems to be little comparability across the subject domain with significant differences between Authority-registered syllabus documents and VET subject areas.

Key areas of substantive difference are:

- in the organising principles and their level of complexity and sophistication
- the range and nature of assessment tasks and opportunities for students to demonstrate learning, though it should be noted that the procedures of assessment have some similarity (over time, ongoing)
- the work-related focus of the VET material
- the content and processes associated with Active Volunteering are especially divergent with no discernible overlap with other subjects in the overall subject area
- much of the 'work readiness' of the VET programs appears to be driven by workplace regulation and legislation, as this is especially important in the areas of outdoor recreation where safety is paramount
- the 'competency' nature of the VET programs tends to dominate the content delivery, which appears perfunctory
- the VET course in sports participation has a pre-requisite of an Institute of Sport Scholarship.

The Sports Coaching courses have greater association with Senior Physical Education but again are dominated by legislative content, especially related to injury. There are performative aspects associated with the course related to pedagogical skills, providing feedback and planning sessions and events. Some of this overlaps with Queensland Senior PE, but only at a superficial level.

Type	Similarities, differences and overlaps with Authority-registered subjects	Similarities, differences and overlaps with VET subjects
Authority subjects	There is only modest similarity here, most specifically between Senior PE and Recreation. However, the organising principles are different and the philosophical bases of the two courses differ completely.	There is no discernible overlap of any real significance.
Authority-registered subjects		Whilst there are some connections between these study areas (for example the emphasis on public service), they largely exist independently of each other.

2.2 Recommendations

Recommendation 4

There appears to be little purpose in removing points of difference between the courses available in Queensland. These programs service different needs and the competency-based programs in the VET sector are aimed at fulfilling specific roles in society. As to whether such roles genuinely exist is another matter.

Recommendation 5

Consideration needs to be given as to whether the job market can support all of the potential jobs identified within the VET courses. If not, then there might be value in course consolidation.

Recommendation 6

The theoretical requirements of both senior PE and Health are to be applauded and this should remain as robust as possible. There is a need, however, to consider how contemporary the theoretical requirements are and whether updating is of value. The structural qualities of both these courses of study should be maintained as should their organising principles.

2.3 Comparable syllabus documents from selected Australian and international jurisdictions

Observations for Health Education

New South Wales

PDHPE sits under its own focus area of PDHPE, which also includes Community and Family Studies.

- Senior schooling is organised as (a) Preliminary and (b) HSC with similar objectives but differing content.
- Assessment in the Preliminary course is school administered and managed.
- Assessment in the HSC course is board administered and controlled. There are two components of equal weighting: internal assessment and exam. Each assessment draws upon different thinking skills and a number of parts with clearly defined intentions.
- A maximum of 50% of the final mark can be allocated to tests and examinations.
- The external exam is split into Core and Options sections.
- There is some evidence that the ‘in, through and about’ model helps guide learning but it is not explicit. However, this connects physical activity and movement to health more readily than happens in Queensland.
- It is suggested that the course rests upon a critical inquiry model though this is not particularly clear. This is consistent with Queensland though it is more explicitly stated in Queensland.
- Learning does take place in a range of environments such as outdoor and indoor play spaces, classrooms, and laboratories. This is to accommodate the integration of the parallel disciplines.

Victoria

The area is termed Health and Human Development and it sits under its own banner:

- VCE subjects are divided into four Units (1–2, and 3–4).
- Assessment in Units 1 and 2 of VCE Health and Human Development is managed by the school (teacher assessment) and based on satisfactory completion of the outcomes specified for the unit. It is not reported to VCAA.
- Percentage contributions to the study score in VCE Health and Human Development are:
 - Unit 3 School-assessed Coursework: 25%
 - Unit 4 School-assessed Coursework: 25%
 - End-of-year examination: 50%.

- Teaching and learning are not clearly specified, and seems to be dominated by direct instruction — though this is not clear.

Western Australia

All courses sit under the HPE banner, separated into the three fields of Physical Education, Outdoor Education and Health Education:

- The WACE syllabus is described in two parts: Year 11 (Units 1 and 2) and Year 12 (Units 3 and 4).
- Students typically undertake this subject in 'pairs' of units, with Unit 3 and 4 having to be studied as a pair.
- Schools report on the school-based assessment of units in both grades (A–E) and a mark (of 100).
- ATAR subjects (equivalent to Authority/OP subjects) require students to sit for an external examination in Health Studies.
- The internal school based work is structured around Inquiry, Project, Response, Examination types of assessment across years 11 & 12.

United Kingdom

Health Education as currently structured (for study purposes) will disappear.

Ontario Canada

The secondary health and physical education curriculum comprises four Healthy Active Living Education (HALE) courses, one in each of Grades 9 through 12, and three specialised destination courses in Grades 11 and 12. The HALE program at the secondary level is designed to follow smoothly from the elementary health and physical education program.

The structural components are:

- Determinants of Health
- Wellness
- Healthy Communities.

There are similarities to Queensland here in terms of emphasis on self and community.

New Zealand

Health Education sits under the HPE subject group and learning area, which includes HE, PE and Home Economics:

- New Zealand has a national curriculum based on eight learning areas.

- National Certificate of Educational Achievement (NCEA). NCEA has three levels, one for each of the last three years of secondary school (Years 11, 12 and 13). It contains a mix of internal and external assessments.
- The Health learning area has a very strong connection to the social model of health and an important inclusion is the idea of Haurora — total wellbeing as a Māori concept. This is an idea that Queensland might consider — Indigenous notions of what it means to be healthy.
- The idea of credits is discussed above — this process does allow NZ senior students to sew together a mosaic of study areas or topics within a study area and within the context of health this allows for some flexibility across the senior years.
- The social justice principle is very prominent throughout the course.

Observations for Physical Education

New South Wales

As for Health Education.

Victoria

The same structural qualities are in place as for health:

- There is a knowledge requirement related to some of the sub-disciplines of physical education — skill learning, biomechanics and sociology and these are very similar to Queensland.
- A range of different types of learning tasks is recommended. They make use of different environmental conditions with the same emphasis on development of complex solutions to a range of movements and physical activity tasks/problems.

Western Australia

- Structures are the same as Health and have the same assessment processes and organising principles.
- Content is similar in depth, scope and applicability.
- Content is also similar, with similar theoretical demands made on the student, and the requirement to demonstrate knowledge and skills in a range of environments.

United Kingdom

The study area is physical education:

- There is emphasis on the key elements that:
 - underpin performance from a biophysical perspective
 - underpin engagement in and with physical activity, exercise and sport
 - these are to be demonstrated, applied and analysed.

- To this end there is great similarity between the UK model and Senior Physical Education in Queensland. However, there is less evidence of personalisation and integration of the distinct knowledge elements than there is in Queensland.
- There is great emphasis on external exams as already indicated and this has been a tradition of A-levels for a long time.
- The NEA or Non-Exam Assessment is to all intents and purposes the 'practical component'.
- The final grade is heavily dominated by the exam, which is quite different to Queensland and again emphasises the crucial difference not just in the externalisation of assessment but in the lack of integration in the program.
- Much is made of technical quality in physical performance and though corrective measures must be made from the theoretical components of the course, the lack of personalisation reduces the immediate relevance of this to learners.
- As part of the demonstration of analysis of physical performance, students take the role of coach. This is different to Queensland and is worthy of consideration.

Ontario Canada

The secondary health and physical education curriculum comprises four Healthy Active Living Education (HALE) courses, one in each of Grades 9 through 12, and three specialised destination courses in Grades 11 and 12.

- Physical Education is organised around three core knowledge areas:
 - Physical Activity and Sport in Society
 - The Bases of Movement
 - Biomechanics and Motor Development.
- This is almost identical to Queensland.
- The assessment procedures and nature of teaching has already been described.
- There is less emphasis on integration and personalisation.

New Zealand

Physical Education sits under the HPE subject group and learning area, which includes HE, PE and Home Economics:

- Again, there are great similarities with the Queensland Senior Secondary program particularly in the areas of sociology and movement skills.
- There is more cultural comparison and this is because of the strong Māori and Pacific Islander presence in the syllabus. A greater number of Indigenous and Islander games are played. This idea is worthy of consideration for Queensland.

- There are clear statements about the use of Sport Education and Teaching Games for Understanding (TGfU) — the Queensland syllabus does not do this but does identify ideas related to pedagogy and curriculum/program design through Peter Arnold's (1988) ideas of 'in' 'through' and 'about'. This is a difference and it is one worth maintaining.
- The Social Responsibility Model (Hellison 1995, though he is not directly cited) is also used throughout the course. This might also be worthy of consideration as there is good evidence for its efficacy in a range of environments.

Observations for Recreation

There are no comparable courses in NSW or Victoria.

Western Australia

There exists a course for Recreation; however, it is treated the same as all other courses and therefore is not comparable.

United Kingdom

There is no equivalent course.

Ontario Canada

The secondary health and physical education curriculum comprises four Healthy Active Living Education (HALE) courses, one in each of Grades 9 through 12, and three specialised destination courses in Grades 11 and 12.

- A recreation course exists under the heading 'Open Courses', these are designed, 'to broaden students' knowledge and skills in subjects that reflect their interests and prepare them for active and rewarding participation in society. They are not designed with the specific requirement of universities, colleges, or the workplace in mind'.
- The focus areas are: Leadership, Facilitation of Recreation and Leisure, Motor Development.

New Zealand

There is no equivalent course.

Observations for VET Courses

There is little evidence or detail of similar courses.

2.4 Recommendations

Recommendation 7

All jurisdictions offer a version of Physical Education or Health Education at the Senior School level though in some cases it is embedded under a broader discipline title. The assessment mix varies in all cases and none is the same as Queensland. The mix in the Queensland course seems to offer more scope than many jurisdictions for students to demonstrate what they know and what they can do, though the NZ program also has diversity of assessment. Structurally this suggests that any redevelopment of the area in Queensland should seek to retain what is considered world standard or world leading.

Recommendation 8

There are some important content differences that warrant consideration:

- The role of Physical Literacy alongside Health Literacy (Canada). Physical literacy has gained purchase in Canada more than almost any other jurisdiction. The influence is clearly Margaret Whitehead (2000), though it would appear a narrower conceptualisation than Whitehead's (2001) original philosophical position (informed mostly, though not exclusively by Merleau Ponty). Hence the Canadian version tends to focus on *moving competently and with confidence and control* in a wide range of movement environments. However, there are suggestions in the Ontario material that Physical Literacy is equivalent to or associated with fundamental movement skills (FMS). The academic literature would show this was not the intention. Three potential areas/connections could be considered:
 - That physical literacy is not limited to developmental phases or associated solely with one's life in school; Physical Literacy is relevant to the life course of people. This connects with the general principles associated with the Queensland Senior PE program. In addition, Physical Literacy in its purer forms eschews the mind/body dualism. This also connects physical literacy with Queensland Senior PE.
 - Additionally, some regard physical literacy as a *capability* that encompasses motivation, competence, confidence, and knowledge that shapes how purposeful physical activity and movement becomes part of one's lifestyle. In this sense physical literacy as a capability resonates with how Martha Nussbaum refers to capabilities.
 - This would connect physical literacy more readily with health literacy, which is already in the AC HPE.
- A more explicit connection with Indigenous understanding of 'total' health and wellbeing, with an acknowledgement that Australia does not have a single Indigenous culture.

Recommendation 9

The move in Queensland to greater external assessment will be a challenge. The New Zealand and Ontario Models are worthy of consideration in that examinations though external are not over emphasised. The United Kingdom model is not recommended. As indicated earlier, the 30:70 split between coursework (practical performance and planning) and 'final' exams seem to be inconsistent with other jurisdictions with an overemphasis of 'learning' for exams. Historically, 'A' levels (and their later derivatives, AS levels) have been content heavy, requiring a relatively linear form of learning. Whilst the United Kingdom system continues to evolve, it is not yet at a point of a more even assessment mix.

2.5 Connections with the Australian Curriculum

Syllabus type	Syllabus	Path	AC subject
Authority syllabuses	• Health Education 2010	Yes	No
	• Physical Education 2010	Yes	No
	• Course is combined as HPE		
Authority-registered syllabuses	• Recreation 2014	No	No

2.6 Implications for the revision of Queensland syllabus documents in the subject group

The shift in emphasis of the new AC HPE to Health Literacy drawing on a strengths-based approach may lead to some discontinuities though these will be minor.

2.7 Recommendations

Recommendation 10

The link between senior programs and the AC HPE is reasonably tight though the connections to Physical Education are not the same as the links to Health; however, this is more a function of the design of the AC HPE. The links, especially to health, could be made clearer but it is not suggested that this is urgent or necessarily compelling.

3 Learning expectations

3.1 Scope of learning across Australian and international jurisdictions

Health Education

Jurisdiction	Scope, organisation and description of learning	
NSW	PDHPE Stage 6 Syllabus	
Prelim		
Core strands (60% total time)	Better Health for individuals (30%) Body in motion (30%)	Content is delivered through: <ul style="list-style-type: none"> • Critical Inquiry <ul style="list-style-type: none"> – Exploring the Issue – Planning for Action – Reflecting on the Issue • Practical Application <ul style="list-style-type: none"> – Enables students to acquire knowledge, understanding, values, attitudes and skills through experiential learning
Options strands (40% total time)	(Choose two) First Aid Composition and Performance Fitness Outdoor Rec	
HSC		
Core	Health Priorities in Australia Factors affecting performance	
Options	(Choose two) Health of Young people Sport and Physical Activity in Australian Society Sports Medicine Improving Performance Equity and Health	
Vic. Structure	The study is made up of four units: <ul style="list-style-type: none"> • Unit 1: The health and development of Australia’s youth • Unit 2: Individual human development and health issues • Unit 3: Australia’s health • Unit 4: Global health and human development. Each unit deals with specific content contained in areas of study and is designed to enable students to achieve a set of outcomes for that unit. Each outcome is described in terms of key knowledge and key skills.	Scope and Key Knowledge Inter-relationship between physical, social, emotional and mental health at individual and community levels Key concerns around: <ul style="list-style-type: none"> • health status • health measurement • health management • burden of disease • health determinants (biological and social).

Jurisdiction	Scope, organisation and description of learning	
WA	<p>The Health Studies ATAR course focuses on the study of health as a dynamic quality of human life. Students undertaking this course develop the knowledge, understanding and skills necessary to promote an understanding of the importance of personal and community action in promoting health.</p>	<p>Course has familiar components but with an added economic element. This is worthy of note.</p> <p>The Health Studies ATAR course is designed to facilitate achievement of the following outcomes:</p> <ul style="list-style-type: none"> • Knowledge and understanding • Beliefs and attitudes • Self management • Health inquiry.
UK	No longer offered	
Ontario	<p>Three key strands:</p> <ul style="list-style-type: none"> • Strand A — Active Living • Strand B — Movement Competence: Skills, Concepts, and Strategies • Strand C — Healthy Living. <p>Health Education Specific (Grade/Year 11)</p> <p>A. Determinants of Health:</p> <ul style="list-style-type: none"> • A1. Personal Factors • A2. Social Factors • A3. Environmental Factors. <p>B. Wellness</p> <ul style="list-style-type: none"> • B1. Personal Wellness • B2. Implementing a Personal Wellness Plan. <p>C. Healthy Communities</p> <ul style="list-style-type: none"> • C1. Consumer Health • C2. Components of Healthy Communities • C3. Promoting Healthy Living. 	<p>Five key learning principles (these service the 1–12 program in HPE):</p> <ol style="list-style-type: none"> 1. Health and physical education programs are most effective when they are delivered in healthy schools and when students' learning is supported by school staff, families, and communities. 2. Physical activity is the key vehicle for student learning. 3. Physical and emotional safety is a precondition for effective learning in health and physical education. 4. Learning in health and physical education is student-centred and skill-based. 5. Learning in health and physical education is balanced, integrated, and connected to real life. <p>This has strong similarities with the newer emphasis in the ACHPE</p>
New Zealand	<p>Health Education:</p> <ul style="list-style-type: none"> • the determinants of health • well-being • resilience • social justice • critical thinking in action • health promotion — taking action. <p>Level 8 takes the study area further to place NZ in a global context:</p> <ul style="list-style-type: none"> • New Zealand health issues • International health issues • Ethical issues • Contemporary health practices • Models for health promotion. 	<ul style="list-style-type: none"> • Inquiry approaches to learning, evaluative forms of assessment • Individual and community based focus followed by a global 'place in the world' orientation for level 8 • High importance attached to applicability of learning, decision making • A socio-ecological approach is taken with specific reference to Indigenous and Pacific Islander ideas about health • Diversity is a key feature.

Physical Education

Jurisdiction	Scope, organisation and description of learning	
NSW	Physical education is part of the overall PDHPE area of study (see above).	
Vic.	<p>A conventional pattern is followed within the conventions of the VCE structure. Hence the organising areas of study are:</p> <ul style="list-style-type: none"> • Unit 1: Bodies in motion • Unit 2: Sports coaching and physically active lifestyles • Unit 3: Physical activity participation and physiological performance • Unit 4: Enhancing performance. <p>These are neither unique or especially surprising and like most jurisdictions the content has followed the rough global evolution of physical education as an examinable subject.</p>	<p>There is perhaps more detail in each of the content areas. So for example though biomechanics is a conventional study area within the VCE unit structure, emphasis on areas such as, Torque, the Magnus Effect and the Co-efficient of Restitution are all given greater attention and look more like a university first level course in Biomechanics rather than an understanding of the effects of the physical world on bodies in motion.</p> <p>This seems to be the only area where such detail is required. The purpose of studying these concepts is not clear, other than the assumption that these areas of knowledge necessarily and unequivocally constitute the field.</p> <p>There is some additional emphasis on coaching in the Victorian structure and this warrants consideration in Queensland.</p>
WA	<p>Year 11 & 12</p> <p>Study of the Physical Education Studies ATAR course contributes to the development of the whole person. It promotes the physical, social and emotional growth of students.</p> <p>Emphasis is on the complex interrelationships between motor learning and psychological, biomechanical and physiological factors that influence individual and team performance.</p> <p>Students engage as performers, leaders, coaches, analysts and planners of physical activity.</p> <p>Again this approach is conventional and is consistent with the evolution of Physical Education as an examinable school subject and before this as an academic discipline.</p>	<p>Throughout the course, emphasis is placed on understanding and improving performance in physical activities. The integration of theory and practice is central to studies in this course.</p> <p>Given the traditions and evolutionary pattern allude to, the content of the course areas across two years are:</p> <ul style="list-style-type: none"> • Developing physical skills, strategies and tactics • Motor learning and coaching • Functional anatomy • Biomechanics • Exercise physiology • Sport psychology. <p>This is perhaps even more conventional and traditional than Victoria. Areas of difference with Queensland in terms of emphasis are in the areas of Motor Learning and Functional Anatomy (these are not demarcated in this way in the Queensland syllabus). Again whilst the documentation talks about integration of content areas, there is little suggestion a course structure like this can achieve it. That said, the outcome statements do allude at least to integration:</p>

Jurisdiction	Scope, organisation and description of learning	
		<ul style="list-style-type: none"> • Outcome 1: Skills for physical activity • Outcome 2: Self-management and interpersonal skills for physical activity • Outcome 3: Knowledge and understanding of movement and conditioning concepts for physical activity • Outcome 4: Knowledge and understanding of sport psychology concepts for physical activity.
UK	<p>The UK follows similar conventions in terms of content; however, the differences in assessment have already been identified. Not surprisingly there is a familiar pattern of content knowledge along conventional lines:</p> <ul style="list-style-type: none"> • applied anatomy and physiology • skill acquisition • sport and society • exercise physiology • biomechanical movement • sport psychology • sport and society and the role of technology in physical activity and sport. <p>Practical performance:</p> <ul style="list-style-type: none"> • role requirement for a practical performer • role requirement for a coach • disability/specialist activities • adaptations and reasonable adjustments to activities. 	<p>There is a strong emphasis on content mastery and recall and this is not unusual for Advanced level study in the UK. Integration of the knowledge areas is not especially apparent though in the performative sections of the course a student is expected to be able to piece these content areas together holistically — the structures for how this happens is not clear.</p> <p>The Non-Exam Assessment (NEA) referred to earlier is the component that is internally assessed and where the influence of the content areas is manifest in performance. There is the expectation that student can evaluate their own performance (as in Queensland) using the content tools — however this form of integration is not as sophisticated as the Senior program in Queensland. The NEW component has a particular focus on technical competence in sport skill performance.</p> <p>The role of the coach is an interesting emphasis though the research in the field is looking beyond the coach simply as a ‘teacher of skills’.</p> <p>A further point of interest is the idea of disability, which represents an important departure from the Queensland model and warrants consideration.</p>
Ontario	<p>As for health education — this is an integrated program with strong similarities to a more advanced form of the AC HPE. It is acknowledged that this course prepares students to study Kinesiology at university as well as enter workplaces. There is a university preparation course associated with this subject area. Again the conventional content areas with the additional of growth and development, which tends to be less common, form the structural requirements of the course.</p>	<p>An important facet of this jurisdiction's offerings is the role of physical literacy as an organising principle this is far more common and with much broader support across Canada.</p>

Jurisdiction	Scope, organisation and description of learning	
New Zealand	<p>As another example of an integrated program much of this is covered above. Though the general knowledge conventions are used to inform the course — the configuration of that knowledge is of interest:</p> <ul style="list-style-type: none"> • movement and its connection with wellbeing • understanding the body • the joy of movement • personal challenge • movement in society • teamwork and leadership. <p>This presents as a rather more interesting way to configure what is considered to be the central and essential knowledge of physical education. This approach is worthy of greater consideration.</p>	<p>As per health.</p>

Recreation

Jurisdiction	Scope, organisation and description of learning	
NSW & Vic.	N/A	N/A
WA	<p>In this review Western Australia is the only jurisdiction with a serious commitment to the study of Recreation but it is equivalent to an Authority subject. It is structured around the idea of interacting with the natural world. Whilst there is much in the program that is framed by physical activity and exercise, this subject area would be a valuable partner course to Biology and Geography.</p> <p>The course is divided as follows:</p> <ul style="list-style-type: none"> • outdoor experiences • self and others • environmental awareness. 	<p>The knowledge and skill components are connected to:</p> <ul style="list-style-type: none"> • relating to the environment • safety and risk • planning • caring for the environment • learning in the natural environment • relationship building • teamwork • decision making • leadership. <p>The course outcomes capture this:</p> <ul style="list-style-type: none"> • Outcome 1: Understanding the principles of outdoor education • Outcome 2: Skills for safe participation in outdoor activities • Outcome 3: Understanding of the environment • Outcome 4: Self-management and interpersonal skills in outdoor activities. <p>The course is organised around what is referred to as an experiential cycle.</p>
UK	N/A	
Ontario	As outlined in Health but with a recreation focus. A university preparation course exists and is listed in the Appendix.	
New Zealand	N/A	

3.2 Recommendations

Recommendation 11

Wholesale structural changes in this learning area should progress with caution as much of what is in the Queensland programs is of high quality and it compares well. Queensland Senior programs do a good job of integrating the knowledge and skills that are said to constitute this area of study. Other jurisdictions also perform well notably New Zealand and Western Australia. However, Queensland seems to offer greater breadth across which students can demonstrate what they know and what they can do. That said, consideration should be given as to whether there is a cost in terms of content depth. This is more difficult to answer because this review is not privy to the performance of students in other jurisdictions.

Recommendation 12

In health, the New Zealand model, which draws in Indigenous knowledge very skilfully, is worthy of note and warrants consideration for syllabus revision. One of the important drivers of the NZ approach is ‘about using creative, critical, and metacognitive processes to make sense of information, experiences, and ideas’. This has a reflexive edge that perhaps is more explicit than the Queensland experience. It is acknowledged Australian Indigeneity is characterised by difference and variation and therefore any single idea associated with how Indigenous Australians understand and talk about health is complex. Perhaps exemplars would be of value and even a reference to Hauroa could be useful. This then adds to the WHO definitions of social models of health and perhaps localises knowledge related to health as well as the challenges in health faced by the diverse Australian citizenry.

Recommendation 13

In physical education Queensland compares very well to all jurisdictions. The explicitness of integration and, just as importantly personalisation in Queensland should be both recognised and applauded. Areas worthy of consideration:

- The New Zealand model of knowledge configuration — some lessons may be learned here. The four strands offer a comprehensive ‘whole’, though admittedly, the course includes health. Nonetheless, the two strands ‘relationships with other people’ and ‘healthy communities and environments’ do offer possibilities that could have potential in Queensland.
- The Ontario position on the value of physical literacy as an organising principle is worthy of consideration. Its uptake is not necessarily advocated here, but there is some enthusiasm for the concept in Australia, if not especially in Queensland. Details of this are included in the previous section.
- The idea of the ‘coach’ as a central element to the study of physical education might be worth consideration — there are significant advances being made in coaching research, much of it

here in Queensland — this could be an interesting development for Queensland Senior PE and for Queensland senior students. For example, creating ‘coaching expertise’ might be a way to broaden the appeal of the Senior Physical Education course that would enable students to demonstrate knowledge in the ‘knowledge about’ domain. Students then who are not as skilled as others, but who have an abiding interest in sport in particular (but it could be dance or other areas), would be able to create a pathway to demonstrate highly sophisticated and highly integrated knowledge *and* be able to coach the activity. This would create the possibility of community-based work that could potentially serve as a site for data gathering, research and analysis. This would offer opportunities that would create a community-school interface that in and of itself would be of value. This might also fit into socio-ecological models that are promoted in the New Zealand syllabus. It is not suggested here that this *should* be done. However, the possibilities might be appealing to both students and teachers because of its ‘real world’ application.

Recommendation 14

Recreation in Queensland serves a different purpose to what it does in Western Australia where it is as much about environmental education as it is recreation. Whilst this is of value, it is not directly comparable to the course in Queensland. As to whether Queensland should have a course similar to that in Western Australia is a broader question, both philosophically, and regarding the serious demands it would make on resources and available expertise.

4 Future focus: 21st century skills

Through its own initial research, QCAA has determined a set of 21st century skills that reflect current educational trends.

21st century skills	Elements
Critical thinking	<ul style="list-style-type: none"> • analytical thinking • problem solving • decision making • reasoning • reflecting and evaluating • intellectual flexibility
Creative thinking	<ul style="list-style-type: none"> • innovation • initiative and enterprise • curiosity and imagination • creativity • generating and applying new ideas • identifying alternatives • seeing or making new links
Communication	<ul style="list-style-type: none"> • effective oral and written communication • using language symbols and texts • communicate ideas effectively with diverse audiences
Collaboration and teamwork	<ul style="list-style-type: none"> • relating to others (interacting with others) • recognise and utilise diverse perspectives • participating and contributing • community connections
Personal and social skills	<ul style="list-style-type: none"> • adaptability/flexibility • management (self, career, time, planning and organising) • character (resilience, mindfulness, open- and fair-mindedness, self-awareness) • leadership • citizenship • cultural awareness • ethical (and moral) understanding
ICT skills	<ul style="list-style-type: none"> • operations and concepts • accessing and analysing information • being productive users of technology • digital citizenship (being safe, positive and responsible online)

4.1 Implications for the revision of Queensland syllabus documents in the subject group

Health Education 2010, Physical Education 2010, Recreation 2014 (Authority registered)

The suitability of the identified 21st century skills is very high across the board on all of these courses within the subject area. Moreover, it is apparent in the syllabus documents that they are predominantly considered core skills and are non-negotiable. In other words every teacher, as a matter of course, should be giving the necessary attention to these skills. For the most part, minimal, if any change is required to draw these skills fully into the operationalisation of syllabus documents. It is apparent that these skills should be drawn into the assessment tasks and this is catered for in the syllabus documents. There are some areas that warrant consideration in any revision of syllabus documents.

In Health:

- Collaboration and teamwork needs to be carefully designed, especially where assessment is involved.
- ICT skills not explicit through the document, though with worldwide access to Health resources *and* with increased use of e-health resources at a community level this warrants attention.
- A critical analysis of e-health resources is probably an appropriate exercise in this subject area.

In Physical Education:

Personal and social skills should be more thoroughly developed through Focus area C. This has traditionally been the hardest Focus area to operationalise within the remit of the syllabus. Figueroa's Framework may have limitations for achieving this, not because it is a poor model but because it has a tendency to be deterministic in a world that is increasingly complex. For example, class, race and poverty come together, sometimes, in unexpected ways that make it difficult to explain social phenomena and their effect on the capacity to engage (or otherwise) in physical activity.

In Recreation:

Creative focus is not as strong in this syllabus and could be more explicit with stronger expectations of engagement.

ICT skills seem a little superficial in this syllabus. Again, this could be more integrated into the skill set requirement (data gathering for example) via assessment tasks.

4.2 Recommendations

Recommendation 15

Consider the role of e-health resources and the impact on the healthy citizen/community/society. This should include a critical appraisal of the trustworthiness of e-health resources.

Recommendation 16

Consider the efficacy of Figueroa's Framework in Physical Education Focus area C. An alternative sociological framework may be of more value though models can be rigid in their interpretation. Figueroa's Framework does resemble some of the ecological models in health so perhaps a preferred position here would be to consider more than one model. Bronfenbrenner's (1979) model (though it is of development) has potential as it includes the element of change over time. This could be of value since change (and the rapidity of change) is a feature of complexity, which is inherent in the modern world. This model is introduced in the Victorian system as part of an overall social ecological approach or to use Bronfenbrenner's language, Ecological Systems Theory. More recent theory in development generally and in community development specifically is Nussbaum's (2011) work on capabilities (also Amartya Sen's (1999) work), though this may not translate as easily to school based study. However, Sen does talk about overcoming what he terms 'unfreedoms' and by this he means inequities that limit one's ability to choose and participate. Currently no school system uses this idea.

Recommendation 17

Consider how more sophisticated ICT skills might be integrated into Recreation.

Bibliography

- Arnold, P 1988, *Education, movement and the curriculum*, London, The Falmer Press.
- Bronfenbrenner, U 1979, *The Ecology of Human Development*, Harvard University Press, Cambridge (MA).
- Figueroa, P Reference not supplied.
- Fitts, PM & Posner, MI 1967, *Human performance*, Brooks/Cole, Belmont, CA.
- Hellison, DR 1995, *Teaching responsibility through physical activity*.
- Nussbaum, M 2011, *Creating Capabilities: The Human Development Approach*, Harvard University Press, Cambridge (MA).
- Sen, A 1999, *Development as Freedom*, Oxford University Press, Oxford, UK.
- Shulman, L 1987, 'Knowledge and teaching: Foundations of the new reform', *Harvard educational review*, 57(1), pp. 1–23.
- Whitehead, M 2001, 'The concept of physical literacy', *European Journal of Physical Education*, 6 (2), 127–138.
- Whiting, HTA, Bijlard, MJ, & Den Brinker, BPLM 1987, 'The effect of the availability of a dynamic model on the acquisition of a complex cyclical action', *The Quarterly Journal of Experimental Psychology*, 39(1), pp. 43–59.
- Vygotsky, LS 1997, *Collected works, volume 3*, Plenum Press, New York.
- Yerkes, RM & Dodds, JD 1908, 'The relation of strength of stimulus to rapidity of habit-formation', *Journal of Comparative Neurology and Psychology*, 18, pp. 459–482.