DIFFERENTIATION IN OUTCOMES FOCUSED PHYSICAL EDUCATION:

PEDAGOGICAL RHETORIC AND REALITY

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INTRODUCTION

To be effective, teachers need to be responsive to the learning needs of their students through mastering important subject content, integrating concepts and implementing teaching strategies that are responsive to a diverse clientele (Dill, 1990; Jewett & Bain, 1985). In stating the obvious, Graham (1995) said the task of delivering physical education (PE) would be substantially easier if students had identical interests, abilities and background; the 'one programme fits all' adage was described as inappropriate. Yerg (1983) summarised the complexity of the PE learning environment and effective teaching and referred to three pertinent and influential aspects. The developmental level of the learners dictated the opportunities and limitations for instruction, and their stages of learning (beginner, intermediate, advanced) impacted on the teaching and learning strategies. Furthermore, the task itself dictated the most appropriate instructional strategies to be adopted. Teachers of PE "… have stressed the importance of self-efficacy in relation to desired outcomes in performance, motivation, and enjoyment for children" (Chase, 1998, p. 87). Given that self-efficacy refers to "… people's judgment of their capacity to successfully perform a task" (Chase, 1998, p. 76), the importance of a differentiated approach as suggested by Yerg (1983) and Graham (1995) is placed in context.

Some have expressed concerns for PE student outcomes. These concerns include; students being engaged in motor activities for less than 30% of class time and only half of this at a level appropriate to student needs and readiness (Silverman, 1991), teaching to the top five or ten percent in skill level (Goodwin, 1997) and "… little obvious progress made by students from one lesson, unit and year to the next" (Kirk, 1995, p. 370). When questioned, some physical educators have laid blame for poor educational outcomes with the students, and "… some blamed the school for only giving them two periods of PE per week," whilst "… few teachers blamed PE, its aims, content, and pedagogy" (Kirk, 1995, p. 370). While the outcomes of

contemporary PE appear questionable, they must be referenced to context. Further to this point, Rink (2001), notes that: "There may be no best way to teach, but there may be a best way to teach particular content to particular learners" (pp. 123-124).

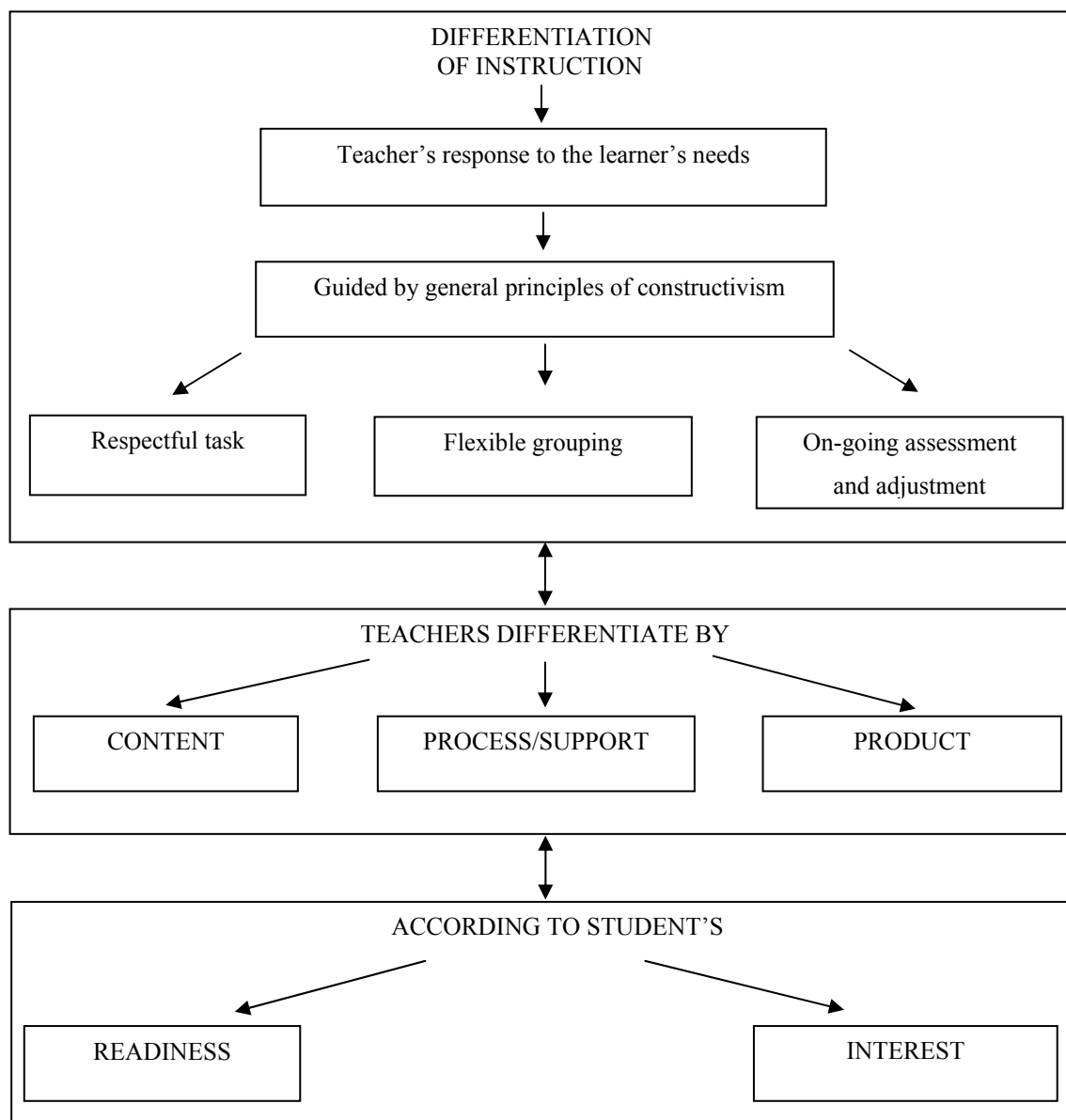**PE Curriculum and Differentiation**

Physical educators who employ a "middle of the road approach" (Napper-Owen, 2003, p. 19) do not respect that children learn motor skills at different rates and, ultimately, will not meet student needs. Good teachers reflect students' different needs and interests in their programmes (Graham, 1995). This could be exemplified by the provision of two activities, one more difficult than another (Pellet & Harrison, 1996); or the provision of the choice to swim with or without a floatation device or fins (Block & Conaster, 2002). Poor or inexperienced teachers also are aware of student diversity, but they tend to rationalise this as the students' problem (Graham, 1995; McCaughtry & Rovegno, 2003). Furthermore, Golder (2003) suggested that without a developmentally appropriate pedagogy, which targets the level of each child in the programme, we are likely to inhibit meaningful movement experiences for all. The differentiated instructional model encourages the teacher to respond to the needs of all learners, with consideration of their existing readiness and interest level.

The goal of a differentiated classroom is maximum student growth and individual success, which is consistent with the defined goals of the Western Australian Curriculum Framework (Curriculum Council, 1998). Unlike many existing teaching strategies differentiated instruction is proactive. That is, assuming that different learners have different needs, delivering a variety of approaches is essential for quality teaching and maximum learning. More specifically "differentiation is not so much the 'stuff' as the 'how', … however… if the 'stuff' is ill conceived, the 'how' is doomed" (Tomlinson, 1999b, p. 16). This student-centred approach is potentially an important focus for the development of school PE pedagogy and curriculum.

Three main approaches to differentiation have been identified. These are differentiation by task, differentiation by outcome and differentiation by support (Harrison, 1997). For Tomlinson (1995, 1999) a differentiated classroom reflects a variety of instructional approaches to modify content (what students learn), process (how students go about making sense of ideas and information), and/or products (how students demonstrate what they have learned) in response to learning readiness,

interest and learning profile. This study was conceptually framed through a differentiation model defined as; teachers differentiating content, process/support and product in response to the students' levels of readiness and interest (Figure 1).

Figure 1: The Conceptual Framework of the Study

DIFFERENTIATION
OF INSTRUCTION

Teacher's response to the learner's needs

Guided by general principles of constructivism

| Respectful task | Flexible grouping | On-going assessment and adjustment |

TEACHERS DIFFERENTIATE BY

| CONTENT | PROCESS/SUPPORT | PRODUCT |

ACCORDING TO STUDENT'S

| READINESS | INTEREST |

Differentiating content

Content is what a student comes to know, understand, and/or be able to do as a result of a learning intervention. The concept-based teaching model is well suited to the game sense approach (Siedentop & Tannehill, 2000) where the teacher facilitates understanding of the game requirements and strategies through questioning and

guided discovery. The PE teacher is well placed to provide more challenging activities (compacting) to the higher-ability students. This permits additional teaching time with the less able (mini-lessons) and the use of modified equipment or game rules.

Differentiating process/support

Process is the opportunity for students to make sense of the content. The level of support provided by the teacher encompasses the provision of guidance, feedback and direction. Sport education (Alexander & Taggart, 1995) sees students charged with individual responsibilities (tiered assignments) and challenged to work in small teams during a community-modelled sport season (role playing). As team manager or coach the students are required to solve problems and make decisions relative to team training, strategies, fixtures and umpiring. With each student undertaking different responsibilities, they are required to research and plan to support other members of the team (cubing).

Differentiating product

The outcomes from the experience, as measured or observed, are often the focal point of the lesson plan and determine the structure of the teaching. When differentiation is employed, the lesson is not driven by the product, but by the processes of learning that will ultimately bring about a resultant product. Teachers who use on-going diagnostic assessment and who provide alternative opportunities to display learning are differentiating for product. This is exemplified when a PE teacher, based on the students perceived ability level, requests students to perform their skills in an environment which maximises the opportunity for the student to display learning. A volleyball game that allows the less able students to catch the ball and self-feed before executing a volley-away demonstrates this concept. Such an approach might allow students to demonstrate newly learned game-based strategies that may otherwise be hidden by poor skill execution.

Readiness differentiation

Activities that are centred too far above or below the level of the learners readiness, will ultimately lead to frustration and boredom, respectively (Rikard & Woods, 1993). Such errors in readiness judgement were seen to negatively impact on

a student's level of concentration, involvement, potency, achievement, motivation and self-worth.

Interest differentiation

In line with the theory of 'flow', as discussed by Csikszentmihalyi, Rathunde and Whalen (1993), the requirements for differentiation are similar, that is, seeking to maximise the interest of the learner, define the purpose or goal clearly, and reinforce the appropriateness of the task to the capacities of the student. New challenges and experiences that demand the application of acquired skills and knowledge are sought in the journey for flow.

The Pedagogical Challenge

Providing a balance of activities in an appropriate format to meet student needs, readiness and interest levels is paramount (Jewett & Bain, 1985, Manross & Templeton, 1997; Napper-Owen, 2003). Whilst the need for a differentiated approach is well established, the task is difficult (Pellet & Harrison, 1996; Rink, 1996) because the level of challenge and willingness is different for each student in each context. Effective teachers will find ways to encourage and assist students by manipulating the task, pedagogy, opportunity to learn, monitoring, support and the assessment process. While outcomes-focused student-centred pedagogies present new challenges for teachers to differentiate content and effectively manage small groups of learners, the need for new or to revisit existing PE teaching strategies appears evident.

METHOD

Year 8 and Year 9 swimming class observations, questionnaires and in-depth interviews with the three teachers (Karrie, Annika and Ernie) and selected members of their classes were undertaken during Term 1, 2002. See Table 1 for a description of the participants and setting.

Table 1: Case Study Participants and Setting

Methods and Instruments	Participants	Setting

Teacher and Swimming Class Observations and Questionnaires	• 3 teachers
	 • 4 classes
	 • 3 target students within each class
		• The lessons that comprised the PE swimming unit
		 • 2 classes at an Independent Girls School
		    Karrie = Yr 8 class (Beatrice, Amber, Rumor)
		    Annika = Yr 9 class (Sharon, Lisa, Kate)
		 • 2 classes at a co-education Government High School
		    Ernie = Yr 8 class (Vinnie, Sarah, Leanne)
		    Ernie = Yr 9 class (Joe, Terry, Robert)

Teacher Interviews	• 3 teachers	• 3 interviews per teacher (beginning, during and end of the unit) • 45 minutes duration per interview
Student Interviews	• 3 target students	• 1 post-unit focus group interview per class • 30 minutes duration per interview

Two teachers at Pebble Beach Girls School (PBGS) agreed to be involved in the study. Located within 2 km of the Perth metropolitan coastal area, PBGS was a member of the Association of Independent Schools of Western Australia. The school had 130 students enrolled in Year 8 and Year 9. One of the teachers, at 39 years of age, was in her 19th year of teaching primary and secondary PE. Karrie was observed six times whilst teaching a Year 8 PE swimming unit to a class of 21 girls. In total, Karrie delivered seven PE swimming lessons of 50 minutes duration. Annika was 25 years of age and was in her 5th year of teaching primary and secondary PE. She taught Year 9 PE swimming to a class of 24 students and was observed eight times. A total of 11 lessons were allocated to Year 9 PE swimming. Each lesson was of 50 minutes duration.

Within 2 km of the coast and approximately 15 km from the city centre, Augusta National High School (ANHS) was a Western Australian Department of Education state secondary school. At 39 years of age, Ernie was in his 15th year of

teaching. Ernie was observed 12 times whilst teaching a co-educational Year 8 class (n=28). He delivered 13 PE swimming lessons to his Year 8 class, six of which were of 50 minutes duration and seven were allocated 70 minutes. Ernie was also observed 10 times whilst delivering a swimming unit to a class of 30 Year 9 males. He taught 14 lessons to his Year 9 class, eight of which were 50 minutes in duration and six were allocated 70 minutes.

The researcher adopted a non-participant observer role and moved as needed to maintain auditory contact with the teacher. The observation foci were identified and headed on the observation guide as; teacher action/context, teacher pedagogy, student activity/context, student related focus/outcome, examples of differentiation, and general notes including issues, relationships and quotes. School, general PE and PE swimming related documents were triangulated with observations and interviews.

The teachers assisted the researcher to identify three students of varying ability (relatively strong, moderate and weak swimmers) who were targeted for direct observation. Targeted student observations were conducted on one swimmer per lesson done in conjunction with general teacher/class observations. These swimmers provided post-lesson evaluative comments which were documented on the observation schedule, using a structured question-response format.

Analysis of Data

Observation data were analysed to induce higher order categories of meaning through the process of conceptual categorisation. Therefore, the data analyses were inductive. Observations were cross-checked with the teacher and student interview comments. All of the interviews were tape-recorded and transcribed verbatim without researcher interpretations and entered into The Nud-ist Software Package (Argyrous, 1996). Transcripts were coded and indexed, allowing for both the exploration and the retrieval of data. All questionnaire data were entered into and analysed using the *Statistical Packages for Social Sciences (SPSS) Version 11*. Frequency distribution, percentage, range, mean and standard deviation scores were presented to summarise and understand the variables across the respondent data.

RESULTS AND DISCUSSION

While segmenting the curricular elements into content, process/support and product, it is important to be mindful that these elements operate in a more

interconnected manner than they may appear in the following discussion. It is through the teacher's knowledge and understanding of the students' readiness and interest that the lesson preparation is devised and the pedagogy determined.

In the absence of differentiation literature specific to PE swimming, perhaps a Year 8 student best describes such an approach:

> I would first ask people what they are good at and what they enjoy then I would split everyone into groups, not being mean but I would put the more advanced people in one group and the less advanced in another, they would both do the same things but more advanced swimmers would do things harder … for the last day ask what kind of games you want to play. (Beatrice, Interview, p. 13)

The Differentiation Rhetoric

In addition to PBGS claiming to respect individual differences: "… we seek … a curriculum that is differentiated" (PBGS, n.d., p. 1), both Karrie and Annika professed a fundamental educational belief to value differentiation. Differentiation was for Karrie:

> … something that you have to incorporate into your programme, …. and plan for (Interview 2, p. 12), …. just part and parcel of teaching swimming in a phys-ed class, … the numbers that you have got, individualised needs. (Interview 3, p. 5)

Annika believed that: "…everybody comes with different expectations and different things that they want to get out of it" (Interview 2, p. 6). In response, she expressed a need to use different strategies and different techniques: "… different opportunities to find the teaching style or learning style that suits them and at a level that is appropriate for them" (Annika, Interview 2, p. 9).

While ANHS did not specifically identify a philosophical intention to differentiate; Ernie, embraced a differentiated approach, claiming the best teaching format was one that differentiated. Ernie said: "because it motivates the kids and gives them a sense of purpose" and "… it actually enhances the level of rapport you can have with some kids" (Interview 3, p. 6). It seemed that the teachers had at least a surface level acceptance of the importance of meeting students at their existing ability level.

Worthy of note, any positive discussion of differentiation was guarded by the limitations of space/numbers, time and student readiness. According to Karrie, extending the students on the educational continuum was limited:

> I think you can (differentiate) to a point, but … there comes a point where the kids need smaller numbers … with a coach to get them to extend, … I do not think you can (differentiate) … where you have one teacher to twenty five kids. (Interview 3, p. 7)

Moreover, Ernie confirmed that a differentiated programme "… is something that you don't want to launch into blindly" (Ernie, Interview 2, p. 4). Ernie believed that he could cope with the approach but, described it as "… very demanding sort of work" (Interview 2, p. 4). Ernie claimed that there were days during the term: "… where I came home and I was pretty knocked around" (Interview 2, p. 4).

The Differentiation Reality

Case study observations exemplified differentiation for PE aquatic content (e.g., Ernie's three groups based on ability; Annika's allowing students to work on self-declared inefficiencies), process/support (e.g., Karrie's optional use of floatation aids, and least ability swimmers allocated pool space nearest the wall side; Karrie and Annika's use of the peer teaching strategies; Annika allowing students to work on self-declared inefficiencies) and product (e.g., Karrie, Annika and Ernie's peer-evaluation and peer teaching, and ongoing diagnostic student evaluation; Annika's formal assessment strategies mixed with varying degrees of instruction and immediate repeat opportunities).

Content

Most of the case study students were very interested in advancing their aquatic competencies with approximately 90% of students indicating it was important to learn how to be a safe swimmer (Range = 86.4%-94.0%) and learning how to save people in water (Range = 78.6%-94.1%). In addition, more than 90% of Karrie's and Ernie's Year 8 students declared that they would choose to do PE swimming if it were optional, while less of the Year 9 students (Annika = 68%; Ernie = 78%) would pursue the option.

The majority of Karrie's Year 8 programme focused on stroke technique analysis/correction (54.5%), with her attention primarily directed "… to the weaker

and the moderate swimmers" (Karrie, Interview 3, p. 7). With this focus, Karrie believed the low ability swimmers improved their swimming, and she thought that some of the middle ability girls also improved. Karrie conceded a failure to extend the higher ability swimmers, thoughts echoed by the students with 58.9% agreeing that their swimming had improved. Amber and Beatrice, relatively strong swimmers, concurred confirming that they had not improved or acquired new knowledge, while Rumor, a relatively weak swimmer declared improvement for her sidestroke, freestyle, survival backstroke, and she learnt to swim at the beach.

Annika's Year 9 PE swimming unit was focused on the RLSSA prescribed Bronze Star Award. With less than half of Annika's 24 students (n=11) passing the Bronze Star Award and 38.1% believing that their swimming had improved, one might speculate that the unit content was pitched at the higher ability swimmers. However, nearly all of the students (86.4%) agreed that their ability to save someone had improved during the term, while another 11, without achieving the Bronze Star Award, did pass the resuscitation component. Annika's resolve to deliver all of the course content, in combination with a high level of student compliance and a class-based assistant teacher, resulted in the opportunity for the strongest to maximise their outcomes. The researcher judged some of the RLSSA Bronze Star content (e.g., distance swim, under-water search pattern, tow rescues) to be beyond the readiness level of the lower ability swimmers (Field notes, March 23).

Ernie's Year 8 and Year 9 unit was focused on the RLSSA prescribed Bronze Star Award. Whilst Ernie delivered a programme to both year levels that was essentially the same, he varied content to each of three ability-based groups, with the weaker and moderate swimmers allocated more water confidence and survival activities and relatively less life-saving tasks. In addition, he allocated some students to an assistant teacher for remedial work. Like Annika's students, approximately 80% of the ANHS Year 8 and Year 9 students agreed that their ability to save someone had improved during the term. Believing that the students "… at the very top end showed some improvement" (Ernie, Interview 2, p. 5), Ernie conceded that the opportunity to deliver the more complex learning activities was a challenge and was impacted on by student numbers at or near 30 in an aquatic environment. While nearly half of Annika's class achieved the Bronze Star Award, none from Ernie's classes were successful. With the content commensurate to the physical readiness for a proportion of Ernie's students (Field notes); when compared to Annika's class, factors such as

lower levels of class compliance, 4-to-6 more students per class, and sharing the assistant teacher with other classes impacted on the student outcomes attained. Contrary to this, Ernie's PE swimming programme was allocated significantly more time (Yr 8 = 790 minutes; Yr 9 = 820 minutes) than that afforded Annika's class (550 minutes).

Familiar content was seen during the ANHS case study observations to impact negatively on student motivation, behaviour and ultimately their outcomes. Further speculation of the importance and impact of the activities offered arose during Year 9 observations at PBGS. Despite high levels of student motivation and interest in achieving a swimming award, there was a perceived lower level of interest in undertaking the content as defined by the RLSSA Bronze Star.

Process/Support

Provision of student choice was observed when Karrie allowed students the option to use buoyancy aids, Ernie used discovery techniques, and Annika employed inclusion pedagogy. Annika and Ernie allowed students to work on self-declared areas of need by working on tasks of choice (practice and inclusion style) independent of the teachers' direct supervision. Self-evaluation, peer-evaluation and peer teaching were observed (e.g., Ernie's class using a peer-observation rubric check-sheet, Karrie using task cards combined with peer-evaluation, and all teachers using reciprocal pedagogy).

Case study observations confirmed that the students' aquatic proficiencies and readiness levels impacted on the lesson format deemed most appropriate and reinforced the need for a differentiated approach. Working across the pool best matched the needs of stroke technique evaluation and correction, while Karrie placed the least able swimmers nearest the pool wall (Field notes, February 8) or closest to shore at the beach (Rumor, Interview). Small group stations allowed the weaker students to work together: "comfortable but challenged" (Ernie, Interview 2, p. 6), "… without everyone knowing that maybe they are struggling" (Annika, Interview 2, p. 7). Being able to touch the bottom of the pool and one-on-one teacher assistance was seen as important for the least able. Teacher directed drill-work and a paired format better suited the middle ability swimmers, while the stronger swimmers responded to: "… giving them a situation, … then giving them the opportunity to figure it out for themselves" (Annika, Interview 2, p. 8). Sharon, a 'state swimmer' agreed: "Maybe

… a teacher show us but then … 5 minutes just to spend working it out and practicing" (PBGS Year 9, Interview, p. 3). The stronger swimmers responded to reciprocal peer teaching/assessing, practice and inclusion methods. However, this was dependent on student readiness, maturity and compliance levels which appeared to interact with gender – appealing more to the girls. Student behaviours at ANHS during reciprocal peer teaching and assessment, practice and indirectly supervised class activities included casual play, disinterest and an unwillingness to work (Researcher, Field notes, February 7, 8, 12, 22, 27; March 5, 15, 21, 27). These uncooperative responses impacted on Ernie's teaching, having to stop a lesson and remove the Year 9 students from the pool for disciplinary reasons (Field notes, March 3), choosing to reject the results of peer-assessment (Field notes, March 21) and minimising the use of student-centred pedagogies. Ernie confirmed his frustration with some of the boys: "I've got 8 cockheads, …. they have a maturity problem, they really can't handle it. Those 8 are holding back the others from working for their certificate" (Ernie, Field notes, February 21). Some pedagogy (peer teaching and assessment without direct teacher supervision) that were placed too far above or below the level of the learner's readiness, left students challenged beyond their capacity to work alone. Inappropriately set challenges resulted in students working outside their zone of proximal development and, as might of been expected (Vygotsky, 1978), unproductive.

Noteworthy, is that the success of peer teaching during Karrie's class also appeared to be related to the swimming ability of the student leader. When the non-participant peer teachers included higher ability swimmers at PBGS the amount of feedback and the outcomes were more positive (Researcher, Field notes, February 8; March 14). However, when low ability swimmers paired themselves during reciprocal styled activities, the challenge of assisting each other appeared beyond their capacity, while high ability paired swimmers in the same lesson worked well (Researcher, Field notes, March 6). Further to this, Annika confirmed that her teaching approach was influenced by the existing abilities of the students. Peer related teaching/assessing interested the high ability swimmer: "… we could sort of help other people to show them how to do things and I like doing that, that's really fun" (Beatrice PBGS, Interview, p. 11). Moreover, given that both the peer teacher and learner were generally seen to benefit at PBGS, and the ANHS girls responded better to unsupervised work (Researcher, Field notes, February 27; March 27), the case

observations evidenced the proposition that the success of peer-assisted/unsupervised swimming pedagogy interacted with gender at the Year 8 and Year 9 level.

Product

While the case study teachers believed that it was possible to differentiate content and process/support in the swimming classroom, differentiating for product was generally unrealistic in the existing context. Collaboration between the teacher and the students occurred to some extent: "but I would say not a huge amount" (Karrie, Interview 3, p. 2). Karrie reported that asking students to show and talk about their performance, or a partner's explanation of what they think they could do better, tends to be what happens (Karrie, Interview 3, p. 2).

However, product related differentiation techniques were employed by the three teachers. Ongoing diagnostic student evaluation was exemplified by teachers observing student performance, particularly early in the course, to assist/guide future lesson and unit activities and pedagogy. Informal peer assessment strategies, or student evaluations in the course of the teaching/learning process, were observed with varying degrees of success. Whilst confirming that she would normally include formal peer assessment by using the student recordings in determining outcome levels, Karrie said that the inclusion of three beach sessions had prevented her from doing this. Ernie provided the non-changed students with an observation rubric check-sheet but was concerned with reliability issues.

The researcher noted the difficulties of operating in smaller groups with a teacher-centred approach to assessment: "This is very time consuming and lots of standing around while another group was assessed," exemplified as "Sharon and her group waited, watched and listened poolside" (5 minutes and 51 seconds) (Field notes, March 15), and Vinnie waited poolside and casually played in the water with his partner (10 minutes and 7 seconds) (Field notes, March 13). Formal assessment, when undertaken within the teaching framework: "With assessment came practice and instruction" and the opportunity to immediately repeat inappropriately performed tasks (Researcher, Field notes, March 25), was seen to be very successful. Assessment was problematic for those undertaking the Bronze Star, which was framed by the award process.

CONCLUSIONS

Three main approaches to differentiation had been identified; by content, process/support and product, all proactively implemented in response to the learner's readiness and interest levels. The teachers professed a fundamental educational belief in differentiation, meeting the needs of individuals and the class. Differentiation techniques by the three teachers included; ongoing diagnostic student evaluation, different activities for different ability levels, provision of student choice, allowing students to work on self-declared inefficiencies, least ability swimmers allocated pool space nearest the wall side, self-evaluation, peer-evaluation and peer teaching were observed. However, even for those who were experienced, such as Karrie and Ernie, the complex dynamic that defined PE swimming and the associated pedagogical issues presented significant challenges to meet the needs of all of the students. While all agreed that it was possible to differentiate content and process/support in the swimming classroom, it was difficult to differentiate for product. Moreover, positive teacher discussion of differentiation in general was guarded by the limitations of space/numbers, time and student readiness. Based on the identified issues, the secondary school PE swimming teachers in this study found it difficult to meet the defined educational goals of the Western Australian Curriculum Framework (Curriculum Council, 1998) and others (Csikszentmihalyi et al., 1993; Napper-Owen, 2003; Tomlinson, 1999, 2001) for an intervention that promotes maximum student growth and individual success.

While the level of differentiation currently offered in PE aquatic programmes and activities may be no worse than that presented in other PE and school-based curricula, it should not deter PE educators from addressing this issue (Jewett & Bain, 1985; Manross & Templeton, 1997; Napper-Owen, 2003; Tomlinson, 1999, 2001). Whilst noting that a differentiated approach is not easy, if adopted it might redress the decline in 'like' and 'usefulness' of the programme (Whipp, 2004) and increase levels of participation (Williamson, 1996). Ultimately, this may enhance student tendencies to develop physically healthy, active lifestyles (Helion & Fry, 1995), a main objective of contemporary PE (Curriculum Council, 1998).

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