WALLRB

Section 3.5
Informal Learning, Self-directed Learning

Work and Lifelong Learning Resource Base (WALLRB)
Materials for Teaching, Research and Policy Making

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1. Auster, E., & Chan, D. C. (2003). The library as a learning organization and the climate for updating in a period of rapidly changing technologies. *Proceedings of the ASIST Annual Meeting, 40*, 158-164.

Examines some of the factors affecting the participation of librarians in professional development activities. Reference librarians working in large urban public libraries in Ontario were surveyed. Data on participation in formal and informal learning activities, together with information about their perceptions of their libraries' environment with respect to updating were obtained from 553 respondents.

KEY WORDS: Employee Attitudes; Foreign Countries; Learning Activities; Librarian Attitudes; Library Personnel; Library Surveys; Organizational Climate; Participation; Professional Development; Professional Personnel; Public Libraries; Staff Development; Ontario.

2. Boulton-Lewis, G. M., Marton, F., Lewis, D. C., & Wilss, L. A. (2000). Learning in formal and informal contexts: Conceptions and strategies of Aboriginal and Torres Strait Islander university students. *Learning & Instruction, 10*(5), 393-414.

Studied the conceptions of formal learning held by 22 Aboriginal and Torres Strait Islander students from 3 Australian universities, a group with a high attrition rate in tertiary education. Results show that these students view and approach university learning in much the same way as other students, but the strategies these students used did not match the conceptions of learning they held.

KEY WORDS: Conceptions & Strategies of Learning in Formal VS Informal Contexts; Enhanced Instruction; Attrition Rate; Youth; Aboriginal; Torres Strait Islander; Undergraduates.

3. Bradley, P., Oterholt, C., Nordheim, L., & Bjorndal, A. (2005). Medical students' and tutors' experiences of directed and self-directed learning programs in evidence-based medicine: A qualitative evaluation accompanying a randomized controlled trial. *Evaluation Review, 29*(2), 149-177.

This qualitative study aims to interpret the results of a randomized controlled trial comparing two educational programs (directed learning and self-directed learning) in evidence-based medicine (EBM) for medical students at the University of Oslo from 2002 to 2003. There is currently very little comparative educational research in this field. In the trial, no statistically significant differences between the study groups were shown for any outcomes considered (EBM knowledge, skills, and attitudes). Further analysis suggests that main reason for the negative trial results was that the majority of students learned equally effectively, whichever program they received, although implementation of the educational programs was not complete because of varying attendance. This study illustrates a stepwise evaluation model that might be useful in evaluating other socially complex interventions.

KEY WORDS: Medicine; Medical Students; Educational Research; Medical Education; Tutors; Educational Methods; Program Effectiveness; Foreign Countries; College Faculty; Student Attitudes.

4. Brougere, G. (2002). Games and leisure as means of informal learning. *Education et Societes, 2(10)*, 5-20.

   This paper introduces & outlines the issues in question that this issue of Education et Societes examines, namely informal learning in leisure & entertainment activities. The multiple difficulties inherent in the relation between games & education have led the author to consider the problem differently by removing games from the limits of their "ghetto" to place them within the rest of social activities as a whole producing fortuitous educational results. However, identifying them cannot be done without having an influence in turn on these same practices that are then considered as being potentially educational through a process of formalization that consists in developing the educational potential of activities that are then less & less part of informal education. It remains, nevertheless, that games & other leisure activities, by their capacity to be taken at a second degree, present potentially educational means that can take on many different forms depending on the nature of the expertise undergone by the players involved.

   KEY WORDS: Learning; Leisure; Games; Education.

5. Coffield, F. (Ed.). (2000). *The necessity of informal learning*. Bristol: The Policy Press.

   This paper argues for a fundamental reassessment of the significance of informal learning. Formal education and training represent only a small part of all the learning done in schools, colleges, at work, at home and in the community. Yet it is formal learning which is at the heart of the government's unshakeable determination to drive up standards by means of qualifications, national targets and league tables. A hierarchy of different types of learning has emerged with "learning for earning"at the top and informal learning at the bottom. This paper concludes, however, that an unjustifiable reliance on certification may serve to alienate informal learners. These 'learning entrepreneurs' argue that the formal training they receive is often dispensable, whereas their own informal learning is necessary and is very much part of who they are and how they interact with the world. A love of informal learning which is not linked to certification or to work appears to be a key characteristic of lifelong learners.

   KEY WORDS: Informal Learning; Training; Standards; Certification.

6. Costa, A. L., & Kallick, B. (2004). Launching self-directed learners. *Educational Leadership, 62*(1), 51.

   Self-directed learning enables students to guide themselves and monitor their own progress towards specific goals. The positive approach towards self-management in developing alternative strategies to achieve the goals is discussed.

   KEY WORDS: Independent Study; Active Learning; Learning Strategies; Self Evaluation (Individuals).

7. Dohmen, G. (2002). PISA: An impetus for more "natural" learning. *Diskurs, 12*(2), 39-44.

   The PISA studies & the recommendations of the German Forum Bildung refer to the criterion of life skills as the ability to apply relevant information & knowledge to carrying out everyday tasks & meeting the challenges of modern life. This means more self-directed learning related to real life situations & a new convergence toward informal

learning. There is a new trend toward more direct learning to enable people to cope with modern-day living. The article also interprets it as a new movement toward more "natural" & more humane learning, which is also more appropriate for children & pupils.

KEY WORDS: Federal Republic of Germany; Children; Learning; Skills.

8. Hargrove, K. (2005). In the classroom: What's a teacher to do? *Gifted Child Today, 28*(4), 38-39.

This article describes the experiences of a second grade teacher who teaches in a heterogeneous bilingual classroom in a large district, and his assignment in a graduate class to conduct action research. This teacher was concerned about the academic performance and motivation of two gifted, but underachieving Hispanic boys in his class. Both of the students had been identified as gifted, based upon high scores on standardized and non-verbal tests. Each demonstrated high cognitive ability both mathematically and verbally. After nearly a full year in the second grade class, both students had shown varying degrees of interest in learning and self-discipline. There was an apparent discrepancy between their scores on standardized tests and their actual performance on daily work in the classroom. They quite often seemed to coast and attempt to get by with the barest minimum of effort. Having looked at research that says "untreated" underachievement becomes an entrenched behavior, one that is increasingly difficult to correct, this teacher, determined not to let that happen to these two students, developed a two part strategy for teaching these gifted students involving giving these two boys two different types of assignments. The first would be traditional, teacher-directed, theme-based assignments as a normal course of study for the class. The second would be a self-selected, self-directed independent research project. The conclusion of this project was that not much changed during the 5-week project on the standard classroom assignment; however, the self-directed project, seemed to be a huge success. The students exhibited greater persistence, drive, interest, creativity, and more dynamic creation of product. This action research demonstrated the difference a teacher can make - one who views students as individuals, who gives them personal interest, and is involved.

KEY WORDS: Hispanic American Students; Males; Academically Gifted; Bilingual Education; Action Research; Graduate Study; Grade; Academic Achievement; Student Motivation; Independent Study; Student Projects.

9. Hengst, H. (2002). Moving up from additional to main Item: The context of informal learning. *Diskurs, 12*(2), 26-33.

The paper traces the change in informal learning by describing significant changes in child culture outside school, in order to alert the reader to important implications of the fact that formal, institutionalized learning has been deposed from its ruling position as the principal way of acquiring knowledge & skills. It illustrates the thesis that a media-based, global consumer culture constitutes the setting for children's & adolescents' learning, not only outside school but increasingly in school as well.

KEY WORDS: Adolescents; Children; Learning.

10. Hernandez-Encuentra, E., & Sanchez-Carbonell, J. (2005). The Bologna process and lifelong education: Problem-based learning. *Higher Education in Europe, 30*(1), 81-88.

This article describes the application of Problem-Based Learning (PBL) methodology in

the context of a student congress, arguing that such new approaches to learning are best suited to the goals of the Bologna Process. The Congress in question enabled Spanish graduate students in Psychology, many of them mid-career professionals, to increase their learning motivation, delve deeper into the learning experience, and further apply their learning and research. By taking an interdisciplinary approach, all the teachers concerned were able to coordinate their involvement. Feedback received from students and professors confirms that the Congress promoted new strategies and skills including self-directed learning.

KEY WORDS: Teaching Methods; Learning Experience; Learning Motivation; Educational Change; Interdisciplinary Approach; Graduate Students; Problem Based Learning; Lifelong Learning; Foreign Countries; Evaluation.

11. Julie Yazici, H. (2005). A study of collaborative learning style and team learning performance. *Education + Training, 47*(3), 216-229.

Self-directed work teams are seen as an important mechanism for dealing with today's complex and rapidly changing business environment. Team learning is an attempt to prepare students to real-world experiences. But, not all teamwork is effective. This paper aims to examine the influence of learning style preferences on team learning performance. The Grasha-Riechmann Student Learning Style Scales (GRSLSS) is used to assess the learning style preferences of business students enrolled in an operations management class. Students were found to be collaborative learners. Students' collaborative orientation complements participation and helps students to compete, which in turn increases team performance. In addition, influence of learning style varies with educational experience, gender and major. Graduate students showed to be collaborative and independent learners. As such, while personal model and formal authority teaching styles fit best undergraduates learning preferences, at the graduate level, instructor role changes to facilitator and delegator. Provides evidence that learning style preferences are valuable for engaging learners in various collaborative activities and for designing successful diverse teams.

KEY WORDS: Teaching Methods; Learning Activities; Teaching Styles; Graduate Students; Educational Experience; Cognitive Style; Measures (Individuals); Teamwork; Teacher Role.

12. Livingstone, D. W. (2000). Researching expanded notions of learning and work and underemployment: Findings of the first Canadian survey of informal learning practices. *International Review of Education, 46*(6), 491-514.

Analyzes the results of the first countrywide survey of the informal learning practices of adults in Canada, conducted in 1998. The survey found respondents to be devoting unprecedented amounts of time to learning activities, including an average of 15 hours per week in informal learning projects. Implications for policy and program initiatives are included.

KEY WORDS: Adult Education; Conference Papers; Continuing Education; Foreign Countries; Informal Education; Lifelong Learning; National Surveys; Nontraditional Education; Underemployment; Unemployment; Canada.

13. Livingstone, D. (2001). *Adults' informal learning: Definitions, findings, gaps and future research*. NALL Working Paper No. 21. Toronto: Centre for the Study of Education and Work, OISE/UT. Available at: http://www.nall.ca/.

This paper on adult informal learning is divided into four sections. Section 1 examines different conceptions of informal learning and the issues and limitations associated with alternative definitions of informal learning. Section 2 is a review of empirical research on the estimated extent, role, and outcomes of informal learning and posited linkages between informal and formal methods of learning. It reports that, according to the New Approaches to Lifelong Learning (NALL) 2000 national survey, over 95 percent of Canadian adults are involved in some form of informal learning activities that they identify as significant. Section 3 critically assesses current research approaches to studying informal learning and identifies policy-relevant knowledge gaps concerning the general level and nature of informal learning, distribution of informal learning across the adult population, impact of informal learning on individual and firm performance, and relationship of informal learning to formal skills development. Section 4 recommends optimal approaches to future research on informal learning practices with a particular focus on survey research in Canada and finds it imperative to establish benchmarks of the general incidence, basic contents and modes, and any differential patterns of intentional informal learning and training, and to continue to track trends in relation to other dimensions of adult learning.

KEY WORDS: Adult Education; Adult Learning; Education Work Relationship; Educational Research; Experiential Learning; Informal Education; Intentional Learning; Lifelong Learning; National Surveys; Outcomes of Education; Research Methodology; Research Needs.

14. Livingstone, D. W., Raykov, M., & Stowe, S. (2001). Interest in and factors related to participation in adult education and informal learning: The AETS 1991, 1993 and 1997 surveys and the 1998 NALL survey. Ottawa: Applied Research Branch, Human Resources Development Canada.

This report offers an analysis of factors related to adult learning in Canada based on the results of the 1991, 1993 and 1997 Adult Education and Training Surveys (AETS), covering program and course participation, as well as the first national survey of informal learning, conducted in 1998 by the research network for New Approaches to Lifelong Learning (NALL). The paper distinguished three basic dimensions of adult learning: the initial cycle of formal schooling, further participation in organized courses and programs, and informal learning that people do on their own outside educational institutions. The data show that, while Canada achieved increasingly high levels of post-secondary schooling, the country's moderate levels of adult course participation declined during the 1990s. The incidence of self-reported informal learning is estimated to have reached an average of about 15 hours a week in 1998. Informal learning is more extensive than formal schooling and is not closely related to either level of formal schooling or participation in adult education courses.

On the basis of an extensive literature review, major factors related to course participation are identified, including general social background, behavioural and attitudinal factors. A preliminary list of factors related to informal learning is also included. An analysis of the AETS surveys confirms the significance of age and economic status effects on course participation and suggests that perceived material barriers to course participation increased during the 1990s. Among those who were interested in taking courses, lower income groups found lack of money to be the greatest barrier, while higher income groups found lack of time to be the greatest barrier. Further multivariate analyses of background factors and perceived barriers find that income level had a stronger effect on participation rates among interested adults than either age or schooling, and that perceived barriers appear to have much weaker effects than either income or schooling levels. The NALL survey results support these conclusions.

Based on these analyses, recommendations are made for steps to overcome some of the detected barriers to adult education participation. The report ends with suggestions for informal learning measures and more inclusive measures of situational and attitudinal factors in future administrations of the AETS.

KEY WORDS: Adult Education; Interest; Participation; Barriers; Informal Learning; Formal Schooling; Further Education; Surveys.

15. Livingstone, D. W. (2006). Informal learning: Conceptual distinctions and preliminary findings. In Z. Bekerman, N. Burbules & D. Silberman (Eds.), *Learning in hidden places: The informal education reader*. New York: Peter Lang.

This paper examines different conceptions of informal learning, summarizes empirical research on the extent of informal learning in advanced industrial societies including the most inclusive recent national survey of informal learning, and critically assesses the limitations of most of the empirical research to date. The paper concludes with suggestions for future research on informal learning practices with a particular focus on survey research.

KEY WORDS: Informal Learning; Informal Education; Self-directed Learning; Studies of Informal Learning; Learning and Work.

16. Luciani, T. (2001). *Second NALL bibliography on informal and non-formal learning*. NALL Working Paper No. 48. Toronto: Centre for the Study of Education and Work, OISE/UT. Available at: http://www.nall.ca/.

This bibliography with 1,273 entries is an updated supplement to the preliminary 1997 bibliography on informal adult learning. It is a useful resource guide for those interested in publications (e.g. academic papers, government reports, grassroots publications) aimed at furthering understanding of how learning and teaching takes place in different settings (specifically, informal and non-formal environments). The guide also lists resources that address how the different ways that learning and teaching exist in various learning environments can be valued and supported. Introductory materials include bibliography sources and search terms. Entries are grouped into these seven categories: (1) general (overviews, definitions and conceptual distinctions, theories of learning, conceptual factors/histories, research methods and standpoint of researchers); (2) surveys/ethnographies; (3) learning power and action in resisting communities; transitions between learning and work (youth, higher education, seniors, learning and work mismatches); (4) learning in the workplace (general; corporations, management, professionals; workers; other work sites); (5) union-based learning; (6) informal learning and technology; and (7) prior learning assessment and recognition.

KEY WORDS: Active Learning; Adult Education; Adult Learning; Associative Learning; Aural Learning; Bibliographies; Computer Uses in Education; Cooperative Learning; Discovery Learning; Discrimination Learning; Education Work Relationship; Educational Research; Ethnography; Experiential Learning; Incidental Learning; Independent Study; Indigenous Populations; Industrial Education; Informal Education; Intentional Learning; Labor Education; Learning Theories; Lifelong Learning; Mastery Learning; Multisensory Learning; Nonformal Education; Nonverbal Learning; Observational Learning; Prior Learning; Resistance (Psychology); Rote Learning; Second Language Learning; Sequential Learning; Serial Learning; Symbolic Learning; Verbal Learning; Visual Learning.

17. Malcolm, J., Hodkinson, P., & Colley, H. (2003). The interrelationships between informal and formal learning. *Journal of Workplace Learning, 15*(7-8), 313-318.

This article summarises some of the analysis and findings of a project commissioned to investigate the meanings and uses of the terms formal, informal and non-formal learning. Many texts use these terms without any clear definition, or use conflicting definitions and boundaries. The article therefore proposes an alternative way of analysing learning situations in terms of attributes of formality and informality. Applying this analysis to a range of learning contexts, one of which is described, suggests that there are significant elements of formal learning in informal situations, and elements of informality in formal situations; the two are inter-related. The nature of this inter-relationship, the ways it is written about and its impact on learners and others, are tightly related to the organisational, social, cultural, economic, historical and political contexts in which the learning takes place. The article briefly indicates some of the implications of our analysis for theorising learning, and for policy and practice.

KEY WORDS: Formal Learning; Informal Learning; Non-Formal Learning; Learning Situations.

18. Marsick, V. J., Volpe, F. M., Brooks, A., Cseh, M., Lovin, B. K., Vernon, S., et al. (2000, 8 Mar). *Meeting the informal learning challenges of the free agent learner: Drawing insights from research-based lessons learned.* Paper presented at the Academy of Human Resource Development Annual Conference, Louisiana.

The concept of the free agent learner, which has roots in self-directed and informal learning theory, has recently emerged as a factor important to attracting, developing, and keeping knowledge workers. The literature on free agent learning holds important lessons for today's free agent learners, human resource developers, and work organizations. Self-directed learning occurs on a just-in-time basis in response to strongly felt challenges situated within highly relevant contexts. At least theoretically, free agent learners are highly self-directed in their learning. Organizations employing knowledge workers have generally changed the nature of the psychological contract between free agent learners and the organization; however, they have not always adjusted systems, rewards, and cultures to support proactive, free agent learners. Organizations that want to keep free agent learners motivated and engaged must take the following steps: make time and space for learning; provide mechanisms for continual scanning of the environment; stimulate heightened awareness around learning; build programs around goals and turning points; provide opportunities for reflection in action; and work around problems engendered by climates that are often riddled with a lack of trust and high rewards for individual achievement at the expense of others with whom employees should be collaborating.

KEY WORDS: Adjustment (to Environment); Adult Learning; Career Development; Education Work Relationship; Educational Educational Research; Employer Employee Relationship; Employment Practices; Foreign Countries; Independent Study; Informal Education; Labor Force Development; Learning Processes; Learning Theories; Lifelong Learning; Literature Reviews; Organizational Change; Organizational Climate; Organizational Development; Partnerships in Education; Small Businesses; Systems Approach; Teamwork; Theory Practice Relationship; Work Environment; Critical Reflection; Europe; Knowledge Management; Learning Organizations; United States.

19. McGivney, V. (1999). *Informal learning in the community: A trigger for change and development.* London: Department for Education and Employment.

Routes of progression from formal to informal learning in community settings in Great Britain were examined in a study that included three research strands: literature review; consultation with relevant agencies and individuals; and visits to nine informal learning environments and organizations providing informal learning in the community. The study documented that informal learning takes place in dedicated learning environments and noneducational settings. The location of learning often proved more important than its actual focus. Informal learning generated by local people themselves often led to wider community involvement and activism, whereas learning arranged by education providers most often led to high rates of educational progression. Informal learning often started people on a continuing learning path by helping them become confident and successful learners. Factors facilitating and impeding educational progression were identified. It was concluded that, although educational progression is an important outcome of informal learning, first-step learning should also be valued for itself. It was further concluded that the system of funding education must consider the fact that adult learning pathways are not always in a single direction. Appended is a table providing examples of progression routes from Open College Network-accredited programs within England's Open College Network Centre.

KEY WORDS: Adult Education; Adult Learning; Case Studies; Community Education; Educational Attainment; Educational Benefits; Educational Needs; Educational Policy; Educational Trends; Enrollment Influences; Foreign Countries; Informal Education; Lifelong Learning; Literature Reviews; National Surveys; Needs Assessment; Open Education; Participation; Policy Formation; Trend Analysis.

20. Miflin, B. (2004). Adult learning, self-directed learning and problem-based learning: Deconstructing the connections. *Teaching in Higher Education, 9*(1), 43-53.

This paper reports a critique of the literature of problem-based learning (PBL) in medical education. The objective of the review was to examine the various meanings that medical teachers attribute to concepts of adult learning and self-directed learning within the context of PBL. The critique found that there are assumptions about the meanings of adult learning and self-directed learning that are accepted uncritically as appropriate to PBL. The nature and the origins of teachers' conceptions of these ideas are explored in an attempt to clarify the meanings of the concepts and the relationships amongst them. An alternative meaning for self-directed learning in PBL curricula is proposed.

KEY WORDS: Teaching Methods; Medical Education; Problem Based Learning; Independent Study; Adult Learning; Teacher Attitudes; Foreign Countries; Cognitive Style.

21. Pearce, C. (2001). Homeless women, street smarts, and their survival. *PAACE Journal of Adult Learning, 10*, 19-30.

A qualitative study of four homeless women depicted their self-perceptions, instability of relationships, decision-making processes, and resourcefulness. Their informal learning included situational and intentional learning applied to survival.

KEY WORDS: Females; Homeless People; Informal Education; Women's Education.

22. Regan, J. A. (2003). Motivating students towards self-directed learning. *Nurse Education Today, 23*(8), 593-599.

    Data from focus groups of 12 nursing students and 8 tutors and survey responses from 97 students and 18 tutors were analyzed. Results revealed a wide range of factors motivated students to be self-directed. All students believed good lectures were highly motivating. Students desired clear guidance and feedback.

    KEY WORDS: Educational Strategies; Higher Education; Nursing Education; Student Attitudes; Student Motivation; Teacher Attitudes.

23. Rhee, K. S. (2003). Self-directed learning: To be aware or not to be aware. *Journal of Management Education, 27*(5), 568-589.

    Critical incident interviews and questionnaire were used to measure behavior change in 25 business students who engaged in repeated reflections on self-directed change and 20 controls. Both groups improved managerial skills. Those in the reflection group were more aware of their own change but overestimated the extent of it.

    KEY WORDS: Behavior Change; Business Administration Education; Estimation (Mathematics); Higher Education; Self Evaluation (Individuals).

24. Robins, J. (2005). Beyond the bird unit. *Teacher Librarian, 33*(2), 8.

    Lance and Loertscher warn that it is possible to use high-quality information resources and still create ineffective learning experience for K-12 students. To illustrate, they discuss the "bird unit," the type of research activity where students search for information in order to fill in worksheets that they transform into essays and presentations. By itself, this type of exercise does not go far in promoting information literacy. National standards for information literacy appear in information power: building partnerships for learning. These standards purport to promote the skills of the lifelong learner as related to information use, self-directed learning, and social responsibility. This paper contains a brief overview of constructivist teaching strategies followed by a description of this collaborative inquiry where teachers and teacher-librarians pooled their experience and knowledge. This paper also concludes by suggesting a process for using constructivist methods to enrich any lesson plan.

    KEY WORDS: Constructivism (Learning); Teaching Methods; Problem Based Learning; Librarian Teacher Cooperation; Information Literacy; Elementary/ Secondary Education.

25. Stipek, D., & Byler, P. (2004). The early childhood classroom observation measure. *Early Childhood Research Quarterly, 19*(3), 375-397.

    This study assesses a new measure of early childhood classroom practice in 127 kindergarten- and first-grade classrooms. The measure was designed to be appropriate for classrooms serving children from the age of 4-7 years. It assesses the nature and quality of instruction as well as the social climate and management of the classroom. Two separate scales assess the degree to which constructivist, child-centered and the degree to which didactic, teacher-centered instructional practices are implemented. Findings indicate that the measure produced reliable scores and meaningful, predictable associations were found between scores on the observation measure, on the one hand, and teachers' self-reported practices, teaching goals, relationships with children, and perceptions of children's ability to be self-directed learners, on the other.

KEY WORDS: Teaching Methods; Social Environment; Observation; Constructivism (Learning); Children; Gender Differences; Teacher Attitudes.

26. Winning, T., Skinner, V., Townsend, G., Drummond, B., & Kieser, J. (2004). Developing problem-based learning packages internationally: An evaluation of outcomes. *Innovations in Education and Teaching International, 41*(2), 125-144.

Due to mounting pressure on higher education resources, interested staff in Australasian dental schools formed a collaborative network to support the effective implementation of problem-based learning (PBL). Cross-institutional teams sourced patient cases and developed and evaluated PBL packages intended to be adaptable for use across curricula and year levels. Packages were designed to support PBL aims, i.e. to provide a motivating learning environment, to foster integrated learning, to encourage a systematic approach to patient management and to develop self-directed learning skills. This paper describes the collaborative process and reports on a cross-institutional study (using surveys and focus groups) to investigate students' experiences of the PBL packages. The findings show that students in different year levels and institutions perceived that the packages provided a context compatible with PBL aims, i.e. one that was motivating and supported integrated, independent learning. This collaborative approach to developing and evaluating PBL packages was valuable in effectively utilizing resources and expertise across Australasian dental schools.

KEY WORDS: Patients; Resources; Learning; Focus Groups; Dentistry; Dental Schools; Problem Based Learning.

27. Yeung, E., Au-Yeung, S., Chiu, T., Mok, N., & Lai, P. (2003). Problem design in problem-based learning: Evaluating students' learning and self-directed learning practice. *Innovations in Education and Teaching International, 40*(3), 237-244.

Discusses problem-based learning and describes a study at Hong Kong Polytechnic University that compared learning issues generated by students with the objectives set by teaching staff, and explored students' self-directed learning practice and the ability to search for information in meeting the learning objectives.

KEY WORDS: Comparative Analysis; Educational Objectives; Evaluation Methods; Foreign Countries; Higher Education; Independent Study; Information Seeking; Instructional Design; Problem Based Learning; Student Educational Objectives.

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