

Research publications on the Old Way/New Way method of habit pattern correction

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1. Introduction

Some points of explanation are in order, to help evaluate the research that follows.

- The following list of publications documents the main areas of Old Way New Way application, to date. This learning method has been used for habit pattern correction, transition training and the correction of misconceptions in sport, flight training, maths and science teaching, driver education and training, defence force training, and in workplace training.
- The consistently positive results obtained with Old Way New Way across all these areas of human learning and performance reinforces the notion of a universally applicable conceptual and behaviour change methodology.
- This wide range of applications is possible because the methodology deals with the fundamental learning mechanisms responsible for both resistance to change and poor transfer of learning, namely habit/error pattern interference and accelerated forgetting.
- Please note that the authors Baxter, P. and Baxter, E. P. are the same individual. Similarly, Lyndon, E. H. and Lyndon, H. are also the same person. Articles in each section are listed in alphabetical order by first author.
- Old Way New Way is the original name for this learning method. It is also referred to in research publications by its other names, i.e., the Conceptual Mediation Program (CMP) and the Mediation Learning Program (MLP). CMP and MLP are copyright Department of Education and Childrens' Services, South Australia. Old Way New Way is copyright E. H. Lyndon.

Annotated bibliography of research publications on the Old Way New Way method of changing habit patterns and improving transfer of learning.

- Abstracts of articles are included where possible. Where articles are available electronically the URL is provided.

2. Publications on Old Way New Way in general

Lyndon, E. H. (2000). Conceptual Mediation: A new theory and a new method of conceptual change. Unpublished doctoral thesis, Department of Education, University of Adelaide. Also available electronically at: <http://www.southsupportservices.sa.edu.au/resources.htm>.

Lyndon E. H. (1989). I did it my way! An introduction to Old Way / New Way. Australasian Journal of Special Education, 13, pp. 32-37.

Education Department of South Australia. (1983). Old way / new way. Education Gazette 11, 11, p. 289.

3. Publications on the application of Old Way New Way to sports coaching

ABC National television coverage of Old Way New Way in sport. New Dimensions Future. Episode 13, 18 September 2002.

Transcript located at:

http://www.abc.net.au/dimensions/dimensions_future/Transcripts/s680275.htm

Baker, K. & Tan, G. (2001). Mediational Learning (Old Way / New Way) for accelerated skill correction: A new paradigm and technique for elite sport. Paper presented at the Australian Conference of Science and Medicine in Sport, 23-27 October, Burswood International Resort Casino, Perth, Australia. Available electronically at: <http://www.ausport.gov.au/fulltext/2001/acsms/papers/BAKE1.pdf>

Extract

Mediational Learning has been used by the psychologists at the South Australian Sports Institute (SASI) with athletes from a variety of different sports. These sports include the following:

- baseball (pitching technique)
- basketball (shooting technique - 3 point line, and jump shots)
- diving (hurdle technique on spring board, take-off technique on platform, and body posture)
- rowing (catch position)
- soccer (kicking technique)
- volleyball (hitting and serving technique, as well as team concepts and beliefs).

Bannon, S., Rawlins, T. & Baker, K. (2001). The use of video analysis for Mediational Learning (Old Way / New Way): New technology meets a new approach to skill correction and maintenance in elite sport. Paper presented at the Australian Conference of Science and Medicine in Sport, 23-27 October, Burswood International Resort Casino, Perth, Australia. Available electronically at: <http://www.ausport.gov.au/fulltext/2001/acsms/papers/BAKE2.pdf>

Annotated bibliography of research publications on the Old Way New Way method of changing habit patterns and improving transfer of learning.

Baxter, P and Graham, C. (2006). 10 Steps To Kicking Your Bad Habit. Golf Australia, June issue. Available electronically at <http://www.golfswing.net.au/10StepsToKickingYourBadHabit.pdf>

Baxter, P. (1999). Performance coaching in lawn bowls: Series of five articles on the use of Old Way New Way in sport coaching. This article first appeared in seven monthly parts in the Queensland Bowler from December 1998 to June 1999, inclusive and was featured in the coaching section of the Royal Queensland Bowls Association web site. Available electronically at: <http://onlinebowler.com/bowlscoaching/index2.php?id=PMGames&Lo=Home>

Baxter, E. P., Lyndon, E. H., & Dole, S. L. (1999, August). Old habits no longer die hard: Accelerating the development of skilled performance using a novel approach to error and technique correction and habit unlearning. Paper presented at the 34th Annual Conference of the Australian Psychological Society, Hobart, Tasmania.

Chambers, Tim & Gordon, Sandy. Technique correction in swimming using the Old Way/New Way methodology. (University of Western Australia). Paper presented at the ISSP 11th World Congress of Sport Psychology. August 15-19, 2005 Sydney.

Chu, Lee Hing. Swimming technique correction using Old Way/New Way: A Hong Kong case study. (Hong Kong Sports Institute). Paper presented at the ISSP 11th World Congress of Sport Psychology. August 15-19, 2005 Sydney.

Cooke, G. (2003). Old Way New Way. Sports Coach. 2003, Vol. 25, No. 4. Australian Sports Commission.

Summary

Compares Old Way New Way sports coaching with conventional coaching, and discusses the highly effective use of the technique with Jason Gillespie, first class cricketer, and with Olympic athletes in Finland.

Hanin, Y., Malvela, M., & Hanina M. (2004). Rapid correction of start technique in an Olympic-level Swimmer: A case Study Using Old way/New way. Journal of Swimming Research. Vol.16, pp. 11-17. (official publication of the American Swimming Coaches Association)

Hanin, Y., Korjus, T., Jousto, P., & Baxter, P. (2002) Rapid technique correction using Old Way New Way: Two case studies with Olympic athletes. The Sport Psychologist 16, pp. 79-99.

This research study won second prize in the 4th European Athletics Association Science Awards, out of a record entry of 28 projects from 13 European countries. The European Athletic Association (EAA), is one of the six Continental groups of the International Amateur Athletic Federation (IAAF). This study was selected by a Jury chaired by EAA Vice President Agoston Schulek. The other members of the Jury were Dr Peter Tschien (GER), Dr Jitka Vinduřková (CZE) and Mr Peter Thompson (GBR). The Jury's selection criteria were:

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- scientific rigour and quality, and
- practical application to coaching and/or teaching athletics.

Abstract

Exploratory studies examine the effectiveness of Old Way New Way, an innovative meta-cognitive learning strategy initially developed in education settings, in the rapid and permanent correction of established technique difficulties experienced by two Olympic athletes in javelin and sprinting. Individualized interventions included video-assisted error analysis, step-wise enhancement of kinesthetic awareness, re-activation of the error memory, discrimination and generalization of the correct movement pattern. Self-reports, coach's ratings and video recordings were used as measures of technique improvement. A single learning trial produced immediate and permanent technique improvement (80% or higher correct action) and full transfer of learning, without the need for the customary adaptation period. Findings are consistent with the performance enhancement effects of Old Way New Way demonstrated experimentally in non-sport settings.

Koulianou, M. & , Vosniadou, S. (2004). Is conceptual change necessary for experts to change a learned skill error? The example of expert athletes in fin swimming with prior knowledge in the swimming style of butterfly. Abstracts of the 4th European Symposium on Conceptual Change: Philosophical, Historical, Psychological, and Educational Approaches. May 19-23, 2004. Delphi, Greece. p. 76-77.
<http://www.cs.phs.uoa.gr/delphi2004/>.

The full text of this article is at:

Koulianou, M. & , Vosniadou, S. (2002). Differences between experts and novices in fin swimming: A cognitive system analysis. Res-Systemica, Vol. 2. Special Issue: Proceedings of the fifth European Systems Science Congress, October 2002, Crete.
<http://www.afscet.asso.fr/resSystemica/Crete02/Koulianou.pdf>

Abstract

The present study examines the relation between the motor learning of the Undulatory movement in Fin Swimming and the previous knowledge in the swimming style of butterfly within the theoretical framework of conceptual change. The basic question is whether the development of a new sport behavior presupposes the reorganization of prior motor experiences similar to nonsport settings as physics, mathematics and astronomy (Vosniadou & Brewer, 1992, 1994). The basic theoretical framework is based on work in cognitive developmental psychology (Vosniadou, & Brewer, 1992) and in cognitive science (Chi, Feltovich & Glaser, 1981, Carey, 1994), which shows that there is considerable conceptual reorganization of prior knowledge required in the process of development or the acquisition of expertise in a domain. The central assumption of this study is that the prior knowledge of the athletes in the swimming style of “butterfly” makes the empirical performance of the new fin swimming style difficult. The hypothesis was tested both at theoretical and practical level. At the first part the athletes (n=12) of the National Team had to perform some exercises (25m immersion, 50m surface, etc.) during their training. The coaches of the National Team observed and marked athletes’ performance. At the second part the same athletes had to complete a questionnaire with 30 questions. After the questionnaire the athletes of the National Fin Swimming team gave an individual interview.

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A qualitative analysis of the results shows the following:

- Prior knowledge of butterfly swimming style inhibits the acquisition of the correct undulatory movement in Fin swimming.
- The athletes seem to construct a mental model to compromise the distinction between butterfly and fin swimming style. This dynamic structure is formed of and constrained by the underlying structure of butterfly knowledge.
- Practice although is valuable and necessary for learning a new skill but seems to be unsuccessful in the face of an established technique error (Lyndon, 2000, Hanin et al, 2002).
- Conceptual change seems to be necessary for the correction of the learned technique errors and the establishment of the new motor skill.

4. Publications on the application of Old Way New Way to driver education and training

Baxter, P. (2004). Old habit no longer die hard: Rapid correction of habit patterns in driving. RoadWise, Vol. 15, No. 1. Available online at:

http://www.personalbest.com.au/driving_habit_patterns.html

Abstract

Driving instructors and students try to get it right the first time but invariably end up spending a lot of time trying to correct errors, misconceptions, technique faults and bad habits that somehow develop. Because these errors were not corrected early, and were inadvertently repeated over and over (i.e., practiced), many error patterns are actually learned, habitual and automatic and are then much harder to eradicate. This paper (1) presents a new explanation for the common observation that although driver education and training programs appear to improve knowledge and skill, these learnings do not readily transfer to safer driver behaviour on the roads and do not reduce crashes, and (2) offers a new theory and method for rapidly correcting driver misconceptions and changing habitual driving behaviours, thereby improving the effectiveness of driver education and training programs.

5. Publications on the application of Old Way New Way to flight training

Baxter, P. (2004). Old Way New Way; Accelerating adaptation to change through cognitive science. Keynote speech delivered at the Singapore Airlines Flight Instructors' Symposium, Singapore, 22-23 July.

Baxter, P. (1998). Old Way New Way Flight Training. Paper delivered at the Royal Aeronautical Society's Human Factors Conference, Gatwick, London.

Smallwood, T. (2000). The Airline Training Pilot. 2nd edition. Ashgate. Chapter 6 (major part) written by Paul Baxter.

Summary

This chapter on the psychology of learning enhancement contains a discussion of Old Way New Way and how it can be used to accelerate adaptation to change in flight training. Various examples of learning situations requiring adjustment to change including transitioning, flight deck automation, upgrading and platform migration, among others, are discussed

6. Publications on the application of Old Way New Way to correction of students' misconceptions in mathematics and science teaching

Baxter, E. P., & Dole, S.L., (1990) Working with the brain, not against it: Correction of systematic errors in subtraction. British Journal of Special Education 17, pp. 19-22.

Abstract

Studies of error patterns in subtraction have provided evidence that, contrary to popular belief, few errors are random or careless. In fact, many errors are conceptual and learned. They have become habitual and consistent with advancing years in school. The existence of these learned errors has implications for corrective attempts in that, despite intensive instructional intervention, many students revert to their own wrong methods. This experimental study employed a randomised, multiple baseline between-groups design, incorporating a control group, to compare the effectiveness of attempts to eradicate consistent subtraction errors through two different methods. Our method challenges conventional explanations of learning failure, as being due to intellectual or perceptual deficits. It proposes that material previously learned interferes with current learning or the recall of recently learned similar materials (proactive inhibition / interference). The methodology aims to overcome proactive inhibition, the effects of which are a prime cause of most learning difficulties. The results appear to show the superiority of the Old Way / New Way method for Type E algorithms. These findings are tentative only, given the small sample (n=6) and the improvement observed in the post-test score of one member of the control group. On the basis of these findings, further studies seem warranted with larger samples and with a wider range of systematic errors in computations.

Dawson, C & Lyndon, E. H. (1997). Conceptual mediation: A new perspective on conceptual exchange. Research in Science Education, 27, 157-173.

Abstract

For the last two decades science education researchers have had a major interest in identifying students' intuitive understanding of a wide range of scientific topics and in reducing the difficulties involved when an attempt is made to replace these views by scientific understanding. Different approaches to this latter problem have been adopted by researchers, with strategies ranging from the pragmatic and atheoretical to those with a stronger theoretical foundation, usually based on some form of constructivism. In this paper we report on a novel theoretical perspective which takes as its foundation the psychological research of about three decades ago which investigated "forgetting," and the important effects of previous knowledge in this process. In particular this new perspective demonstrates that, under normal teaching conditions, and through the process of proactive inhibition, the student's prior knowledge can accelerate the forgetting of the newly taught scientific ideas. The paper first develops the theoretical position and then shows that a change in teaching approach can take advantage of the differences between the students' prior understanding and the scientific view to ensure more efficient replacement. Following this an overview of the new methodology, as it is currently being used on a trial basis by science teachers in South Australia, is briefly introduced.

Dole, S. (1991). Error patterns and subtraction knowledge development: A comparison of methods. Unpublished Masters dissertation, Queensland University of Technology.

Abstract

Traditionally, students' mathematics errors and misconceptions were viewed from a negative perspective, taken as indicative of the absence of knowledge/meaning. Constructivist theory offers a more positive perspective, suggesting that errors are an individual's current interpretation of a mathematical situation and thus are indicative of knowledge. Error pattern research has prompted new approaches to intervention, with errors/misconceptions increasingly being used as the beginning point for intervention. The success of such approaches has been mixed with error recidivism being a common occurrence. A further dimension to this field is offered by Conceptual Mediation (CM) [which uses Old Way New Way] (Lyndon, 1995). The theoretical background of CM states that accelerated forgetting of new material occurs if it conflicts with pre-existing knowledge. Errors/misconceptions therefore are retained even in light of rational argument. In this paper, error pattern research and conceptual change programs are briefly summarised, followed by a discussion of the psychological basis of CM.

Dole, S. (1992). New ways for old - systematic computation errors and remediation. *Teaching Mathematics*, 17, 18-21.

Dole, S. (1993). Error patterns and subtraction knowledge development - a comparison of methods. New York: Cornell University, Ithaca: Electronic publishing of seminar proceedings. Proceedings of the Third International Seminar on Misconceptions and Educational Strategies in Science and Mathematics. <http://www2.uscs.edu/mlrg/proc3abstracts.html>.

Dole, S. (1995). Gaining access to mathematical literacy: Application of Old Way/New Way to mathematics instruction for adult learners. Brisbane: Proceedings of the Third Annual International Conference on Post-Compulsory Education and Training.

Dole, S. (1999) Percent knowledge: Effective teaching for learning, relearning and unlearning. Unpublished doctoral dissertation, Queensland University of Technology, Brisbane, Australia.

Dole, S. (2003). Applying psychological theory to helping students overcome learned difficulties in mathematics. *School Psychology International*, 24 (1), 95 – 114.

Abstract

The appearance of systematic errors in computation suggests relatively unlinked computational knowledge to conceptual knowledge, and hence difficulties with forward learning of mathematics. The provision of programs of good teaching, where concrete materials are used to exemplify and thus legitimize algorithmic processes, frequently are not effective for use with upper primary students: systematic errors often resurface. A novel and quite alternate approach to intervention is the Old Way/New Way (O/N) strategy (Lyndon, 1989) based on psychological principles of memory, forgetting and interference. In this article, issues associated with intervention, systematic errors and upper primary students are addressed through a discussion of results of previous research into seventh graders' subtraction knowledge development by overcoming error patterns in subtraction computation. By comparing

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re-teaching strategies and O/N, it is proposed that both good teaching and effective intervention strategies should be integral to the craft of teaching, particularly in the middle school.

<http://www.sagepub.co.uk/JournalIssueAbstract.aspx?pid=105766&jiid=504222&jiaid=32582>

Dole, S., Cooper, T.J., & Lyndon, H. (1997). Error patterns, conceptual change and accelerated forgetting: Another dimension to the jigsaw of effective conceptual mediation in mathematics. Paper presented at the Fourth International Seminar, From Misconceptions to Constructed Understanding, Cornell University, Ithaca, New York, June 13-15.

Henderson, R., Higgs, G., Lyndon, E. H., Wilkinson, D., & Yates, G. (1999, March) Conceptual Mediation Program in science and mathematics: Effects on motivational indices and strategy awareness. Paper presented at the Department of Education, Training and Employment Research Expo. Adelaide, South Australia. Electronic document: <http://www.unisanet.unisa.edu.au/edpsych/research/CMPReport1.rtf>.

Abstract

In this project Conceptual Mediation (CM) is described as an innovative program in high school science and mathematics teaching. CM incorporates aspects of an earlier teaching method (oldway/newway) but stress is placed upon students assuming greater responsibility for "mediating" their learning. In the present study we surveyed CM and non-CM classes on attitudes toward school. Relative to their peers, students with high levels of exposure to CM exhibited (a) enhanced scores on a questionnaire measure positive work attitudes, (b) enhanced personal agency, (c) reduced levels of negative leaning indicators (eg school antipathy and malaise). The CM students also gave more adaptive responses on an open-ended item tapping awareness of problem solving strategies. These beneficial effects were evident, however, only in the case of students in year 10 who had participated in the program over a two-year period.

Lloyd, D. (1999). Out with the old. EQ Australia, 9-11.

Lyndon, E. H. (1995). Conceptual Mediation. Voice, 3, 12-15.

Lyndon, E. H. (2000). Conceptual Mediation: A new theory and a new method of conceptual change. Unpublished doctoral thesis, Department of Education, University of Adelaide. Also available electronically at: <http://www.southsupportservices.sa.edu.au/resources.htm>

Lyndon, E. H. (2001). Conceptual mediation: A new theory and new method of conceptual change for the new millenium in practice. CONASTA 50 Conference *Proceedings*.

Lyndon, H. (2004). Conceptual Mediation (CM): A New Theory and a New Method of Conceptual Change in Practice. Abstracts of the 4th European Symposium on Conceptual Change: Philosophical, Historical, Psychological, and Educational Approaches. May 19-23, 2004. p.130. Delphi, Greece. Electronic document: <http://www.cs.phs.uoa.gr/delphi2004/>.

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Abstract

This paper presents an overview of a new theory and a new method of conceptual change and reports on their practical application in the mediation by students of conflicting concepts in science education. The term, mediation, is here used to mean that an individual consciously attempts to reconcile his or her conflicting concepts. The theoretical perspective proposes that the well-documented learning difficulties experienced by science students arise as an outcome of the natural tendency of the mind to conserve prior learning in the face of conflicting new experience. It is argued that this tendency is a universal attribute of human cognitive development caused by the associated phenomena of proactive inhibition and accelerated forgetting. It has been shown that where students and their teachers apply CM strategies in a collaborative way that student's learning of counter-intuitive concepts and skills is significantly increased compared to that of students using conventional learning strategies. CM students achieved significantly higher tertiary entrance scores (an effect size of 1.04) and the program worked equally well for both genders. Further beneficial outcomes of this program are significant improvements in student behaviour, positive attitudes toward school, time on task, and improved self-esteem, particularly in male students. Detailed results of evaluations of the CM program's influence at two Australian public secondary schools will be presented.

Lyndon, E. H. & Dawson, C. J. (1995). The Conceptual Mediation Program: A practical outcome from a novel perspective on conceptual change. Paper presented at the Australian Association of Science Education Annual Conference, Adelaide.

Lyndon, H., & Dawson, C. (1995, July) The conceptual mediation program: A practical outcome from a novel perspective on conceptual change. Paper presented at the 26th Annual Conference of the Australasian Science Education Research Association. Bendigo, Victoria, Australia.

Lyndon, E H., Lloyd, D., & Wilkinson, D. (1995). Changing students' conceptions: The conceptual mediation program. South Australian Science Teachers' Association Journal, Semester 2, 52-55.

Lyndon, H., Lloyd, D. & Wilkinson, D. (1995). Changing students' concepts: The Conceptual Mediation Program. Workshop for science teachers Years 8-10. South Australian Science Teachers' Association Journal, Semester 2, pp. 52-55.

Lyndon, H., Dawson, C., Lloyd, D. and Wilkinson, D. (1997). Conceptual mediation: A new perspective on concept change. Paper presented at the 28th ASERA Annual Conference, July 4 – 7. University of South Australia, Adelaide.

Rowell, J. A., Dawson, C. J. and Lyndon, H. (1990). Changing misconceptions: a challenge to science education. International journal of science education, 12 (2):167 - 175.

Abstract

In this paper we examine misconceptions as personal explanatory knowledge judged by experts in the field to be in error. To those who have constructed them, misconceptions are not recognizable as different from any other explanatory knowledge: they are formed by the same process, take part in the generation of new

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knowledge and consequently are difficult to replace. As with construction, replacement involves the processes of equilibration. To date, educational strategies promoting equilibration in the classroom have attempted this through co-operative debate, using the teacher as chairman and agent provocateur. Here, we briefly discuss the epistemological status of an alternative to co-operative debate that is more teacher centred, and report on a comparative empirical test of the educational potential of the two strategies.

Wilkinson, D. (1999). In with the new. EQ Australia, 13-15.

Winteler, A. & Geyer, C. (2004). Conceptual Mediation: A Strategy to Develop and Change Conceptions of Teaching. Abstracts of the 4th European Symposium on Conceptual Change: Philosophical, Historical, Psychological, and Educational Approaches. May 19-23. Delphi, Greece. p.168-169.

<http://www.cs.phs.uoa.gr/delphi2004/>

Abstract

In this presentation we deal with the problem of developing and changing conceptions of teaching and learning. Literature shows that this process needs time (up to 3 years) and effort. This problem can be explained by the natural tendency of our organism to protect what we have learned, especially when we are confronted with new and conflicting experiences, like the change from teaching to learning and the changing role of the teacher (from sage on the stage to guide on the side). The brain mechanism, which is responsible for this tendency, is called proactive inhibition. Proactive inhibition means that the existing (old) knowledge interferes with the retention of new knowledge. This interference shows up in the phenomenon of accelerated forgetting. We present a new way, helping people to learn new things and to change their conceptions of teaching and learning, without activating this protection mechanism. Mediation Learning. Mediation Learning is a metacognitive strategy using language intentionally to control the effects of proactive inhibition and accelerated forgetting. The result is a faster and longer lasting learning, better retention of what was learned and a stronger motivation to learn and to change.

Yates, G. C. R. & Lyndon, H. (2001). Evaluation of Conceptual Mediation Project: Analysis of higher education entry scores data stemming from a South Australian high school, 1998 to 2001. Electronic document:

<http://www.unisanet.unisa.edu.au/edpsych/research/Conceptual%20Mediation%20Project/CMPReport3.doc>

Extract

Within the South Australian high school system, Year 12 represents the end of the traditional schooling period. In the normal course of events, students enrol with the public examination institution, SSABSA, at an earlier point in time, with a view to presenting for formal assessment by the end of their Year 12 studies. Around 75% of students who enrol at the Stage 1 level (Year 11) eventually complete their Year 12 studies through completing courses of study in five topic areas. Within each area, the score of 20 is used as the maximum attainable level, and these are used to derive each student's TER, or Tertiary Entrance Rank, which is then used by the state's higher education facilities to determine eligibility to entry to specific programs. As such, Year 12 results are seen as highly salient, summative outcomes, i.e., aspects which determine the vocational opportunities open to individuals. It is not uncommon for

students to attempt Year 12 studies twice, or perhaps over 2 years in order to maximise individual opportunities for subsequent educational or vocational placement. In the present study we sought to use the Year 12 SSABSA results as one index of the effectiveness of an educational intervention treatment known as the Conceptual Mediation Program, or CMP, at one school location within Metropolitan Adelaide. This program was used by 2 teachers specifically trained in CMP and used by them at this location in the science and mathematics curriculum, culminating in Year 12 examination grades. It can be noted that CMP involves a cognitive strategies training procedure which is intended to assist in both initial learning and subsequent memory retention of difficult learning material. The data reveal that students who had the opportunity to acquire and practice memory enhancing strategies under the framework of the CMP training obtained TER scores higher than peers who did not experience this training in preparation for public examination assessment. Additional data, not reported here, indicate other positive benefits to the students of the CMP including, advanced problem solving skills and more positive attitude to study and their own education. These data are reviewed in two earlier reports.

Yates, G. C. R., & Lyndon, E.H. (2001). A Rich and Rewarding Experience: A Report on The Conceptual Mediation Project at Canberra High: Effects on Student Attitudes to Learning. Electronic document:

<http://www.unisanet.unisa.edu.au/edpsych/research/Conceptual%20Mediation%20Project/A%20Rich%20and%20Rewarding%20Experience.doc>

Abstract

The Conceptual Mediation Project (CMP) is described as an innovative program in high school science and mathematics teaching in which stress is placed upon students assuming greater responsibility for "mediating" their learning. In the present study we surveyed CMP and non-CMP classes on attitudes toward school. Relative to their peers, students with exposure to CMP exhibited enhanced scores on a questionnaire measuring positive work attitudes. The CMP students also gave more adaptive responses on an open-ended item tapping awareness of problem solving strategies. Detailed analysis revealed that the impact upon students' strategy awareness attitudes, and the belief that "school is a rich and rewarding experience" was particularly evident in the case of boys participating in the CMP.

Yates, G. C. R., & Lyndon, E. H. (2004). Conceptual Mediation Program in Practice: Educational Outcomes from Two Sites. Research in Science Education 34, 4, 389-401.

Abstract

We report on two studies in which high school students who had been exposed to a cognitive training procedure known as the Conceptual Mediation Program (CMP) were compared to students who had not participated within the program. In the first study, based on data from two sites, it was found that 70 CMP students exhibited higher levels of school affect and strategy awareness than 103 comparable students not in the program. In the second study, based on retrospective data from one site, 53 students who had participated within CMP classes were found to exhibit higher levels of attainment on Year 12 South Australian public examination results (effect size of 1.04 on the aggregate). On the Year 12 examination results, the CMP students outperformed both the school and state norms. Key Words: conceptual change, high school students, metacognition, prior knowledge, proactive interference

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Yates, G.C.R., Lyndon, E.H., Henderson, R., Higgs, G., & Wilkinson, D. (1999). Conceptual Mediation Program in Science and Mathematics: Effects on Motivational Indices and Strategy Awareness. Presented at the DETE Research Expo, Adelaide South Australia, March 1999. Available electronically at: <http://www.unisanet.unisa.edu.au/edpsych/research>.

7. Publications on the application of Old Way New Way to habit pattern correction in spelling

Baxter, P. (2000). Mediation Learning: Old Habits No Longer Die Hard. Write On, 2000, 18, 1, 10 - 15. Queensland Council For Adult Literacy Newsletter. Discusses the theoretical background to Mediation Learning (Old Way New Way) and its application to adult literacy teaching.

Baxter, P. (2000). The Way Ahead: Old Way New Way and Mediation Learning. Classroom, 7, pp. 12 - 13.

8. Publications on the application of Old Way New Way to workplace skill development and work habit change

Baxter, P. (2005). The problem is not learning the new; it's forgetting (unlearning) the old: Eliminating habit patterns and improving learning transfer. Presented at the SimTect 2005 Health Care Simulation Conference, 1-3 November. Royal Brisbane & Women's Hospital Education Centre, Brisbane, Australia. [Go to the full presentation](#).

Baxter, E. P., Lyndon, E. H., Dole, S. & Battistutta, D. (2004). Less pain, more gain: Rapid skill development using Old Way New Way. Journal of Vocational Education and Training, 56, 1, 21-50.

www.triangle.co.uk/vae/content/pdfs/56/issue56_1.asp#2

Abstract

This study addresses an issue of global concern in skills training, namely the rapid and permanent eradication of persistent habit errors and bad or unsafe work practices. This paper, (i) offers an alternative human factors explanation for the profound difficulties and low transfer of training experienced during error pattern retraining and the correction of habitual performance faults; (ii) describes *Old Way New Way*, a metacognitive strategy for achieving rapid and permanent error and technique correction and habit unlearning; and (iii) presents the results of an experimental trial of this behaviour change methodology. Vocational education students, representing a broad range of skill types, were recruited and randomised to one of two error correction modes, or to a control group. One *Old Way New Way* correction session with students yielded 80% or higher performance improvement that was maintained over three post-test periods. Students and teachers reacted positively to the *Old Way New Way* learning method. The high level of transfer of learning obtained is consistent with results in other settings. Implications for education, training, coaching and other performance enhancement settings are discussed.

Baxter, P., Lyndon, H., Dole, S., Cooper, T., Battistutta, D., & Blakeley, J. (1997). Skill correction & accelerated learning in the workplace. An experimental field trial of the Conceptual Mediation Program and Old Way/New Way. Curriculum Research

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and Development, TAFE Queensland. Australian National Training Authority
Research Advisory Council Grant No: 95026.

Extract

Knowledge is an enterprise's greatest resource. Online management development is fast and cheap. By 2002, more than half of all training will be technology based, with the remainder taking place in the classroom. This article discusses the proactive habit interference mechanism that slows down change and continuous improvement in knowledge and skills. The solution, Old Way New Way, accelerates human learning and allows the rapid uptake of new knowledge and skills.

Weaver, G., Baxter, P. & Lyndon, E. H. (2000). Changing work habits: More gain, less pain. Australian Safety News, October 2000, pp. 58-59. National Safety Council of Australia Ltd.

Extract

Graham Weaver, Training Coordinator, KAAL Pty Ltd (a joint venture of ALCOA and Kobe Steel), Point Henry, Geelong, Victoria, Paul Baxter and Harry Lyndon, Department of Education, Training & Employment, Adelaide, South Australia, write about a new process of skill mediation (Old Way New Way) which aims to change behaviour at work in the name of good OHS.

9. Publications on the application of Old Way New Way to habit pattern correction in speech pathology

Lyndon E. H., & Malcolm, B. A. (1984) The effects of proactive and retroactive inhibition: the Old Way/ New Way methodology and its application to speech pathology. Proceedings of the Annual Conference of the Australian Association of Speech and Hearing: Beyond 1984. Adelaide, South Australia.

10. Publications on the application of Old Way New Way to habit pattern correction and lifestyle change

Baxter, P. (2000). If only I could ... Taking control of change. New Vegetarian Health Magazine, Winter edition, pages 38-39.

11. Publications on the application of Old Way New Way to management education

Czechowicz, J. (2000). The Education Boom.. Management Today. November-December, pp. 12-13. Australian Institute of Management.

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