New South Wales
Computer Education Group

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You are invited to contribute to Information Transfer. Remember a free conference registration will be made for the best contribution each year.

We are on the Web
www.nswceg.org.au

The NSWCEG website is hosted by

ASI SOLUTIONS www.asi.com.au
EVERYTHING CONNECTED

The NSW Computer Education Group was formed in late 1979 with the objectives of providing a forum for those involved in, and interested in Computer Education. Ever since the **NSWCEG** has been addressing the problem of enhancing communication between individuals interested in Computer Education and Learning Technology in NSW.

The **NSWCEG** publishes ***Information Transfer*** as it's professional journal four times per year. A conference is organised each year for members. The executive meet every month and this ***CEG Newsletter*** is sent to members four times per year.

The **NSWCEG** is affiliated with the *Australian Council of Computers in Education* (**ACCE**) and the *International Society for Technology in Education* (**ISTE**).

As new communication technologies have developed the **NSWCEG** has adopted them as resources allow. Now you are able to keep in touch with the **NSWCEG** on the Internet and through its Internet Portal. In 2003, as in 1979, communication is a two way thing. The **NSWCEG** needs your contribution to the ***Newsletter*** and ***Information Transfer***.

THE SUSTAINABILITY CHALLENGE—TAKING EDTECH TO THE NEXT LEVEL

Benton Foundation, Education Development Center, Inc.
www.edc.org
Center for Children and Technology (2003)

A number of critical actions are needed to sustain our school technology infrastructure and to take it to the next level. The "top 10" list includes:

1. Accelerate teacher professional development
2. "Professionalize" technical support
3. Implement authentic edtech assessments
4. Create a national digital trust for content development
5. Ensure all Americans have 21st century skills
6. Make it a national priority to bridge the home and community digital divides
7. Focus on the emerging broadband divide
8. Increase funding for the federal edtech block grant
9. Share what works
10. Continue edtech funding research

MY IT CLASSROOM
MY LEARNING

NSWCEG 2004 Conference

Call for papers, presenters, exhibitors and sponsors will be available shortly. If you have any ideas/needs please contact us so that we can work on them. We are aiming to have as many classroom/school practitioners presenting as possible.

The focus of this conference very clearly ***Information Communication Technologies in the classroom***. The strands will be based on Key Learning Areas. We will be asking speakers and presenters to focus very clearly on the use of ICT, in KLAs, in the classrooms.

The Truth about the Worm

Shane Wharton
IT Infrastructure Manager, CEO Parramatta

Ten 'TRUTHS' about the Blaster WORM:

1. An easy attitude to security has hit home, BIG TIME.
2. Don't blame the "system" - users too have responsibilities.
3. If you had the patch your PC was safe.
4. If you had up to date AV software your PC was safe.
5. The impact on the whole computer world was HUGE.
6. Macs and Win 98 PCs weren't affected.
7. Backdoors to the "system" networks are BAD.
8. Unsecured wireless networks are backdoors.
9. There is a moral to *the boy who cried wolf*!
10. It can happen again.

Under Attack! Four new worms and viruses created havoc on computer networks recently.

Virus/worm	Description
Lovsan.D	Variant of LovSan (also known as Blaster, MSBlast, LoveSAN) with an attachment called mspatch.exe instead of msblast.exe. This worm exploits the same Microsoft remote procedure call (RPC) vulnerability; its scanning
Welchia (also known as Nachi)	Uses RPC hole to infect unpatched machines running Microsoft software by exploiting the WebDAV vulnerability, with the intent of killing Blaster worm infestations and downloading the Microsoft patch. But it causes network congestion through scanning.
SoBig.F	Fifth variant of the SoBig.A worm first spotted in January, SoBig.F is a mass mailer that tricks victims into opening attachments, such as "Wicked Screensaver," then installs a backdoor, while grabbing directory
Dumaru	A mass-mailer worm that fakes its way into a user's trust as spoofed mail from support@microsoft.com, but when the attachment is opened, installs a backdoor that lets the virus writer control the machine.

www.nwfusion.com/news/2003/0825worms.html

www.cert.org/tech_tips/w32_blaster.html

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ICT: My classroom, my learning

MY CLASSROOM
LEARNING
ENGLISH
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NSWCEG
2004
BACK TO BATHURST

22nd Annual State Conference of the NSW Computer Education Group

Saturday 10 July to Wednesday 14th July 2004

Charles Sturt University, Bathurst.

Mark your diary now!

Back to Bathurst in 2004

The conference

The conference will begin at **2pm on Sunday 11th July** and close at lunchtime on **Wednesday 14th July 2004**. The conference is fully residential, with bed; breakfast, morning tea, lunch, afternoon tea and dinner provided each day. There will be a dinners on Sunday night, Monday night and a special conference dinner on Tuesday night. We are already planning a theme night for Tuesday. We will have the usual activities of bush dancing and other icebreakers to keep you entertained.

Certificate courses

In 2004, it is our intention to offer certificate courses beginning at **2pm on Saturday 10th July**, running until Sunday lunch. These certificate courses will be a minium of five hours duration over Saturday afternoon, evening and then Sunday morning. Some examples of the certificate courses are Digital Video and Web page design. Please contact our office if you would like to offer a certificate course. If you would like us to put one together on any topic, then contact us and we will see what we can do.

Leadership and Management Conference

The 2003 NSWCEG Board is pleased to announce that a Mini Conference to held at Port Macquarie. The dates for the mini conference are the **25th and 26th October 2003.**
VENUE: Sails Resort Port Macquarie.

The conference is called "NSWCEG Leadership and Management Conference".

All members are welcome to attend.
Call the NSWCEG office on 1800 002 083 or email us
nswceg@ozemail.com.au

Australian Computers in Education Conference (ACEC2004)

Australian Computers in Education Conference '**ACEC2004**'. The next national biennial conference of the Australian Council for Computers in Education will be held in Adelaide from **Monday 5 July** to **Thursday 8 July 2004.**

"Research,... Reform,.. Realise the Potential!"

Inside this issue:

Did you know?

Apple have released a neat presentation tool called KEYNOTE?

That according to news.co.com *Microsoft is halting development of Internet Explorer for the Apple Mac and that it will stop development of standalone versions of Internet Explorer, instead evolving the browser as part of future updates to the Windows OS?*

That IE6 SP1 is the final standalone installation of Internet Explorer?

Constructivist Theory (J. Bruner)

Greg Kearsley

http://tip.psychology.org/bruner.html

Overview

A **major theme** in the theoretical framework of Bruner is that learning is an active process in which learners construct new ideas or concepts based upon their current/past knowledge. The learner selects and transforms information, constructs hypotheses, and makes decisions, relying on a cognitive structure to do so. Cognitive structure (i.e., schema, mental models) provides meaning and organization to experiences and allows the individual to "go beyond the information given".

As far as instruction is concerned, the instructor should try and encourage students to discover principles by themselves. The instructor and student should engage in an active dialog (i.e., Socratic learning). The task of the instructor is to translate information to be learned into a format appropriate to the learner's current state of understanding. Curriculum should be organized in a spiral manner so that the student continually builds upon what they have already learned.

Bruner (1966) states that a theory of instruction should address four major aspects: (1) predisposition towards learning, (2) the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner, (3) the most effective sequences in which to present material, and (4) the nature and pacing of rewards and punishments. Good methods for structuring knowledge should result in simplifying, generating new propositions, and increasing the manipulation of information.

In his more recent work, Bruner (1986, 1990, 1996) has expanded his theoretical framework to encompass the social and cultural aspects of learning as well as the practice of law.

J Bruner

Scope/Application

Bruner's constructivist theory is a general framework for instruction based upon the study of cognition. Much of the theory is linked to child development research (especially Piaget). The ideas outlined in Bruner (1960) originated from a conference focused on science and math learning. Bruner illustrated his theory in the context of mathematics and social science programs for young children (see Bruner, 1973). The original development of the framework for reasoning processes is described in Bruner, Goodnow & Austin (1951). Bruner (1983) focuses on language learning in young children. Note that Constructivism is a very broad conceptual framework in philosophy and science and Bruner's theory represents one particular perspective. For an overview of other Constructivist frameworks, see **http://carbon.cudenver.edu/~mryder/itc_data/constructivism.html.**

Example

This example is taken from Bruner (1970). *"The concept of prime numbers appears to be more readily grasped when the child, through construction, discovers that certain handfuls of beans cannot be laid out in completed rows and columns. Such quantities have either to be laid out in a single file or in an incomplete row-column design in which there is always one extra or one too few to fill the pattern. These patterns, the child learns, happen to be called prime. It is easy for the child to go from this step to the recognition that a multiple table , so called, is a record sheet of quantities in completed multiple rows and columns. Here is factoring, multiplication and primes in a construction that can be visualized."*

Principles

1. Instruction must be concerned with the experiences and contexts that make the student willing and able to learn (readiness).
2. Instruction must be structured so that it can be easily grasped by the student (spiral organization).
3. Instruction should be designed to facilitate extrapolation and or fill in the gaps (going beyond the information given).

References

Bruner, J. (1960). The Process of Education. Cambridge, MA: Harvard University Press.

Bruner, J. (1966). Toward a Theory of Instruction. Cambridge, MA: Harvard University Press.

Bruner, J. (1973). Going Beyond the Information Given. New York: Norton.

Bruner, J. (1983). Child's Talk: Learning to Use Language. New York: Norton.

Bruner, J. (1986). Actual Minds, Possible Worlds. Cambridge, MA: Harvard University Press.

Bruner, J. (1990). Acts of Meaning. Cambridge, MA: Harvard University Press.

Bruner, J. (1996). The Culture of Education, Cambridge, MA: Harvard University Press.

Bruner, J., Goodnow, J., & Austin, A. (1956). A Study of Thinking. New York: Wiley.

More about Bruner can be found at:
http://www.infed.org/thinkers/bruner.htm
http://www.psy.pdx.edu/PsiCafe/KeyTheorists/Bruner.htm

Theorists Contributing to Constructivism

Detken Scheepers

http://hagar.up.ac.za/catts/learner/2000/scheepers_md/projects/loo/theory/construct.html

Educational constructivism can be divided into personal and social constructivism. In personal constructivism it is the individual person doing constructing or the processing of cognitive and memory structures. The theories of Von Glaserfeld and Piaget fall mainly in this category. Social constructivism involves a group doing the constructing. The theories of Vygotsky and Bandura are of importance in describing these learning procedures.

Important Theorists:

Max Wertheimer	Gestalt Psychology, emphasis on insight, laws of proximity and closure
Jean Piaget	Development of schemata; accommodation and assimilation; four stages of intellectual development; conservation
Lev Vygotsky	Social Development
Jerome Bruner	Constructivist Theory
Albert Bandura	Social Learning Theory, imitation, modelling, self-efficacy
Ernst Von Glaserfeld	Radical Constructivism
J Lave	Situated Learning
J Bransford	Anchored Instruction
C Rogers	Experiential Learning
John Dewey	Learning a result of disequilibrium
R Spiro	Cognitive Flexibility Theory
C Reigeluth	Elaboration Theory
T Sticht	Functional Context

REVISITING CONSTRUCTIVIST TEACHING

Instruction vs Construction from ***Teaching with Technology creating student centred classrooms***—JH Sandholtz et al

	INSTRUCTION	CONSTRUCTION
CLASSROOM ACTIVITY	Teacher centred Didactic	Learning centred Interactive
TEACHER ROLE	Fact teller Always expert	Collaborator Sometimes learner
STUDENT ROLE	Listener Always learner	Collaborator Sometimes expert
INSTRUCTIONAL EMPHASIS	Facts Memorisation	Relationships Inquiry and invention
CONCEPTS OF KNOWLEDGE	Accumulation of facts	Transformation of facts
DEMONSTRATION OF SUCCESS	Quantity	Quality of understanding
ASSESSMENT	Norm referenced Multiple-choice items	Criteria referenced Portfolios and performances
TECHNOLOGY USE	Drill and practice	Communication, Collaboration Information access, Expression

Brooks, J. G. & Brooks, M. G. (1993). ***In Search of Understanding: The Case for Constructivist Classrooms*** Alexandria, VA: Association for the Supervision and Curriculum Development.

Constructivism is a theory that . . . *defines knowledge as temporary, developmental, socially and culturally mediated, and thus, non-objective. Learning from this perspective is understood as a self-regulating process of resolving inner cognitive conflicts that often become apparent through concrete experience, collaborative discourse, and reflection.*

Constructivist teachers:

- encourage and accept student autonomy and initiative;
- use raw data and primary sources, along with manipulative, interactive, and physical materials;
- when framing tasks use cognitive terminology such as *classify*, *analyse*, *predict*, and *create*.
- allow student responses to drive lessons, shift instructional strategies, and alter content;
- inquire about students' understanding of concepts before sharing their own understandings of those concepts;
- encourage students to engage in dialogue, both with the teacher and with one another;
- encourage student inquiry by asking thoughtful, open-ended questions and encouraging students to ask questions of each other;
- seek elaboration of students' initial responses;
- engage students in experiences that might engender contradictions to their initial hypotheses and then encourage discussion;
- allow a time after posing questions.
- provide time for students to construct relationships and create metaphors; and
- nurture students' natural curiosity through frequent use of the learning cycle model *.

Constructivist teachers encourage students to engage in dialogue, both with the teacher and with one another.

**** The learning cycle model consists of discovery, concept introduction, and concept application.***

Brooks & Brooks (make six suggestions:

1. Structure teacher training and in-service teacher education around constructivist principles and practices.
2. Jettison most standardize testing and make assessment meaningful for students.
3. Focus resources more on teachers' professional development than on textbooks and workbooks.
4. Eliminate letter and number grades.
5. Form school-based study groups focused on human developmental principles.
6. Require annual seminars on teaching and learning for administrators.

New South Wales Computer Education Group

Pauline Tipping

NSWCEG MEDAL

Recognising Excellence

The Fifth NSWCEG Medal was awarded at the 2003 **NSWCEG** Annual Conference. **Pauline Tipping** has become the fifth **NSWCEG Medal** recipient. Pauline has been a huge contributor to the management and implementation of the **NSWCEG** for many years. She has been conference organiser and a member of both the **ALSA** and **NSWCEG** Board of Directors. This medal was given in recognition of her outstanding and sustained contribution to the **NSWCEG**.

NSWCEG Medal winners:
No1 Dr Ian Pirie (2000); No2 Bruce Mitchell (2000); No3 Phil Nanlohy (2000); No4 Shane Wharton (2002); No5 Pauline Tipping (2003).