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Instructional Design for Best Practice in the Synchronous Cyber Classroom

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ABSTRACT

This paper investigates the correlation between the quality of instructional design and learning outcomes for early childhood students in the online synchronous cyber classroom. Today's generation of e-learners has access to highly engaging and well-designed multi-media synchronous classrooms. However little data exists on what constitutes 'good practice' in instructional design for online synchronous cyber lessons. The synchronous cyber classroom outperforms all other modes of instruction in enabling students to simultaneously integrate visual, auditory and kinaesthetic processes. The online synchronous cyber classroom provides learners with more authentic and engaging learning activities enabling higher levels of learning compared to purely asynchronous modes of self-paced learning. During 2001-2007 a group of students aged 5 to 8 years collaborated with their teacher at Brisbane School of Distance Education, Australia in a trial of online synchronous learning. The trial identified 'best practice' in the instructional design of synchronous lessons delivered through the Collaborative Cyber Community (3C) learning platform at the National Sun Yat-sen University, Taiwan. A guideline for 'best practice' in the instructional design of online synchronous cyber lessons for early childhood students has been developed and discussed.

Keywords

Instructional design, Online synchronous learning, Cyber classroom, Early childhood students

Introduction

This paper describes the evolution of 'best practice' in instructional design in synchronous cyber classrooms for students aged 5 to 8 years. The students were enrolled at Brisbane School of Distance Education (BSDE) and worked synchronously with their teacher Ms Megan Hastie during a six year trial. The trial became an international collaboration between BSDE, Australia and the National Sun Yat-sen University (NSYSU), Taiwan during 2005-2007. Synchronous teaching and learning over the Internet was embraced by the teacher and students as a means of overcoming the tyranny of distance and isolation experienced by most students.

The paper attempts to define 'best practice' in instructional design for maximum learning gain in early childhood students in the synchronous cyber classroom. We examine instructional design within the context of the practical purpose of learning. We describe new instructional design elements that we have developed to maximize online learning for very young students. These elements acknowledge the prior learning of each student and provide the practical means for achieving expected learning outcomes.

Technological innovation has provided educators with hardware and software but has not necessarily provided innovative instruction and pedagogy. To use an analogy, we have the machine but we are still waiting for the teaching manuals to be written. In particular, a paucity of data exists on instructional design for synchronous cyber learning with early childhood students.

BSDE is a public school which operates under the governance of Education Queensland (EQ). Seven schools of distance education are located throughout Queensland. The students in this study were aged 5 to 8 years and were enrolled in Megan Hastie's class at BSDE between 2001 and 2007. The students and their parents live in various locations throughout Australia and overseas. Students enrolled at BSDE access a range of asynchronous course materials including print, audio and multi-media. Students work off-campus, usually at home and under the supervision of a parent who is their Home Tutor. Students complete the course work and return the work to their teacher for evaluation. Communication between the student and the teacher has traditionally been by mail and telephone. With the advent of the Internet communication is occurring increasingly through email and web-based

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resources. The use of synchronous teaching and learning is being explored as a viable alternative and adjunct to traditional modes of delivery for students enrolled in Education Queensland schools of distance education.

Nowadays, people are living in the global village such that children may go with their parents to a foreign country because of changes in their work locations. With the global Internet environment, children can use Information Communication Technologies (ICT) to keep in touch with their family and friends. Furthermore, e-learning can also help individual students continue their education. Interaction is one of the key factors in gaining access to information and for effective learning (Keegan, 1990). However, instructors are supposed to take more responsibility for instructional design to improve and encourage learners in online learning activities (Hannafin, 1992).

Given that ICT enable the instantaneous transfer of information; educators have the added challenge of designing instruction for high-speed interaction. In ICT-enabled educational environments thoughts can be transferred from one person to another in nano-seconds enabling brain-to-brain information exchange (Hastie & Chen, 2006). The synchronous component of ICT-enabled learning environments is gaining more prominence. For instance, Chen et al (2005) state that the synchronous cyber classroom provides a learning environment that can outperform both asynchronous online instruction and traditional face-to-face instruction. Little attention, however, has been given to the use of synchronous cyber learning with younger students and to the development of 'best practice' in instructional design in the synchronous cyber classroom. This paper attempts to redress the situation.

Literature Review

Despite current behaviorist-oriented or constructivist-oriented arguments, instructional design makes instructors take a systematic approach to creating a learning environment that promotes effective learning outcomes. In this paper we define instructional design as the process through which an educator determines the best teaching methods for specific learners in a specific context, attempting to obtain a specific goal (Dick & Carey, 2001).

The challenge for today's educators is to develop 'best practice' in instructional design for lessons in the synchronous cyber classroom. Chickering, & Ehrmann (1996) say that simply incorporating technology into instruction is not enough. Instructors need to focus on seven 'best practice' strategies:

1. Increase interaction between instructors and students.
2. Increase cooperation among students.
3. Increase students´ active learning.
4. Prompt feedback given to students.
5. Facilitate students´ time on task.
6. Communicate expectations.
7. Adapt to students with diverse talents and ways of learning.

These strategies are highly relevant to the pedagogy of the synchronous cyber classroom. The challenge for educators is to ensure that 'best practice' is translated into 'real' practice in synchronous cyber lessons.

Worley (2000) cited Ehrmann in arguing that the learner should be the focal point in research on web-based learning. In particular she says that the relationship between faculty and student deserves more investigation. Greater prominence should be given to the specific learning strategies rather than the impact of the technology in isolation. Witt & Wheeless (2001) say that research must consider other variables, particularly those related to instructional strategies to determine the effectiveness of web-based learning.

A high correlation has been identified between the immediacy of verbal and nonverbal responses and cognitive learning (Rodriguez et al., 1996). The immediacy of the teacher's verbal and nonverbal behaviours in face-to-face situations has been linked both directly and indirectly to enhanced cognitive and affective learning. Immediacy therefore is equally relevant, and possibly more relevant, in web-based lessons because participants are required to create a social presence through their communications. The synchronous cyber classroom lends itself to high speed verbal and nonverbal interaction between teacher and student. When translated into practice in the synchronous cyber classroom, the teacher and student use the technology to establish their communication link, to create a social presence and negotiate the lesson content. They then embark on the 'real' synchronous interactive component of the lesson using the system tools. The teacher gives the student 'live' feedback and evaluation. Recordings of the lesson can be used by both the teacher and student for evaluation of the learning process. Storage of recorded lessons means instructional design issues can be identified and resolved.

With feedback gained from the instructional design process, refinements can be made to the adopted learning theory and to the instructional process itself. In computer-mediated instructional design (including e-learning, e-tutoring, course development.), instructional design plays a critical role in enabling immediacy of response and in creating social presence. The immediacy behaviors of participants in the synchronous cyber classroom become more prominent. The role of the teacher shifts from discussion leader to discussion facilitator as the student assumes more responsibility. This facilitates technology-based learning which enables students to solve their specific learning problems (Nichols & Anderson, 2005).

Cognitive gain is one of the important goals for instructional design (Chial, 2004; Philips, 1994). Teachers, therefore, need to focus on how to design learning activities which can better engage students in active learning. This results in deeper learning and promotes cognitive gain Topping (2005) has pointed out that cooperative learning and peer tutoring facilitated by ICT tools can increase students' self-organizing opportunities and improve cognitive gain (Topping, 2005; Topping et al., 2004). Other literature has also reported on ways to use different ICT tools to promote self-organizing opportunities for learners (Vogel, et al., 2006; Corpus & Eisbach, 2005).

Synchronous learning methodology has been acknowledged as an important strategy for collaborative learning (Marjanovic, 1999). Chen, Ko, Kinshuk, & Lin (2005) demonstrate that the most promising advantages of the synchronous cyber classroom are in the provision of immediate feedback such that learners in the cyber classroom are able to correct themselves immediately and thereby strengthen their learning. The synchronous process enhances student motivation through the students' obligation to be present and to participate in the face-to-face cyber environment. Wang & Chen (2007) describe the results of a pilot study assessing the value of a synchronous learning management system to support online live tutorial sessions in second language learning. They found that the range of tools supported by the platform including chat, whiteboard, and videoconferencing technology can provide a resilient, supportive learning environment for distance learning students. Hastie & Palmer (2003) found that the synchronous cyber classroom demands higher levels of concentration in learners during learning activities and thereby maximizes memorization and learning outcomes. The results recorded in the synchronous cyber classroom are compared to its asynchronous cyber classroom counterpart. The paper concludes that there is a need for educators to give greater prominence to synchronous cyber lessons for learners aged 5-8 years instead of using the current pedagogy of starting from asynchronous learning activities.

Methodology

The trial provided individualised instruction to students aged 5-8 years using online synchronous cyber classrooms created by the digital school called the Collaborative Cyber Community (3C). The digital school server is located at NSYSU and is a kind of Synchronous Learning Management System (SLMS) developed and supported by Professor Nian-Shing Chen to facilitate international team-teaching for young children. The teacher, Megan Hastie, was based in Brisbane. The students were located within Australia and throughout the world, including Asia and the Pacific, Europe and the United States of America.

The synchronous cyber lessons were an adjunct to the regular program provided at BSDE. The students volunteered to participate in the trial. Students worked at home using a personal computer and linked-up to the Collaborative Cyber Community digital school platform.

The early phase: communication with isolated learners

In the early phase of the trial the synchronous cyber classrooms were used to enable live communication between the teacher and students. The cost of telephone calls to isolated and international students meant that these students seldom had the opportunity to speak to their teacher. The majority of their communication was asynchronous and paper based. Communication relied on traditional mail services.

The use of digital communication modes via the Internet became a feature at BSDE in 2000. This enabled email contact and more significantly provided broadband capacity that supported an interactive whiteboard and Voice over Internet Protocol (VoIP). This enabled the teacher and students to talk and interact with each other in 'real time'. The use of the Internet for communication set a precedent in itself because many of the students were geographically, socially and educationally isolated. This meant that the students went from practically no direct contact and communication with their teacher to 'real' time interaction and discussion.

The teacher and student entered the synchronous cyber classroom by logging-on to the Collaborative Cyber Community platform. The platform supports both asynchronous and synchronous functionalities for teachers to design and conduct various teaching & learning activities in asynchronous cyber classroom or synchronous cyber classroom. The student and their home tutor, usually a parent, logged-on to the Collaborative Cyber Community platform at a pre-arranged time. Allowances were made for time zone differences for students living overseas.

Both teacher and student wore a headset with built-in microphone. The headsets limited extraneous noise and audio feedback. The interactive whiteboard was used, along with the webcam (where available) for the sharing of digital information. VoIP enabled audio and discussion. The student used a mouse or a graphic tablet to draw and write on the synchronous interactive whiteboard. The teacher provided the student with digital and auditory feedback in the form of written and verbal comments. A webcam (where available) was used by the teacher and student. The teacher was able to make direct live observations of the student at work.

The interaction between the teacher and student in the initial phase of the trial can best be described as teacher-directed learning. The teacher prepared multiple whiteboard screens prior to the lesson. The screens featured activities designed to meet the specific learning needs of the individual learner. This type of activity resembled a 'worksheet' similar to the paper activities found in traditional classrooms. The teacher used commercially produced graphics as picture clues. The student completed the activity and received immediate feedback from the teacher in the form of a 'tick' and written praise for a correct answer. Negative feedback was avoided for incorrect answers. Rather the student was encouraged to have another attempt at the correct answer. This allowed the student to perform tightly scripted tasks in a teacher-directed and highly supportive learning environment. An example of this type of activity is shown in Figure 1.

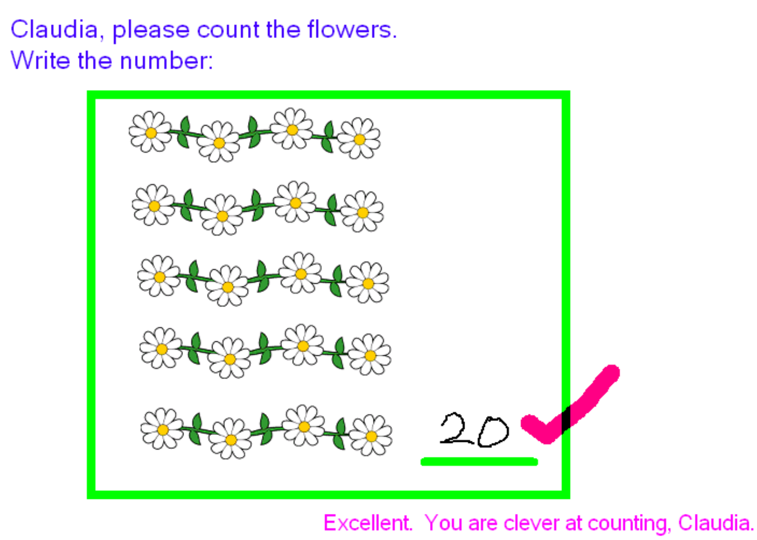

Figure 1. Worksheet format

The Second Phase: student and teacher 'real' collaborative learning

The communication capabilities of the synchronous cyber classrooms were established in the early phase of the trial. The focus of the trial then changed to the pedagogical issues related to synchronous teaching and learning. This can be largely attributed to a student named Madeline.

Madeline was eight years of age and worked online in a synchronous cyber classroom with Megan Hastie during 2001-2002. A gifted student, Madeline brought a new dimension to cyber lessons. Her written responses on the interactive whiteboard in the synchronous cyber classroom provided irrefutable evidence of abstract thinking and higher levels of cognitive functioning. Madeline created 'mind maps' on the interactive whiteboard to record and plan her learning. This is a form of 'metacognition' in which Madeline demonstrated her ability to think about her thinking. She recorded her thoughts on the interactive whiteboard whilst simultaneously typing the text and discussing the content with her teacher. Figure 2 shows Madeline was planning a research project on birds that were nesting on her parents' farm:

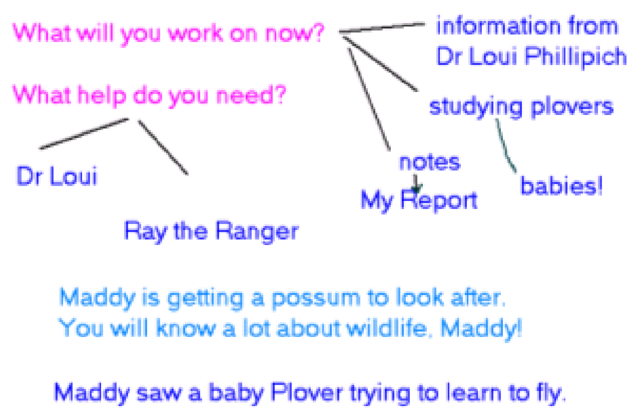

Figure 2. High level cognitive function

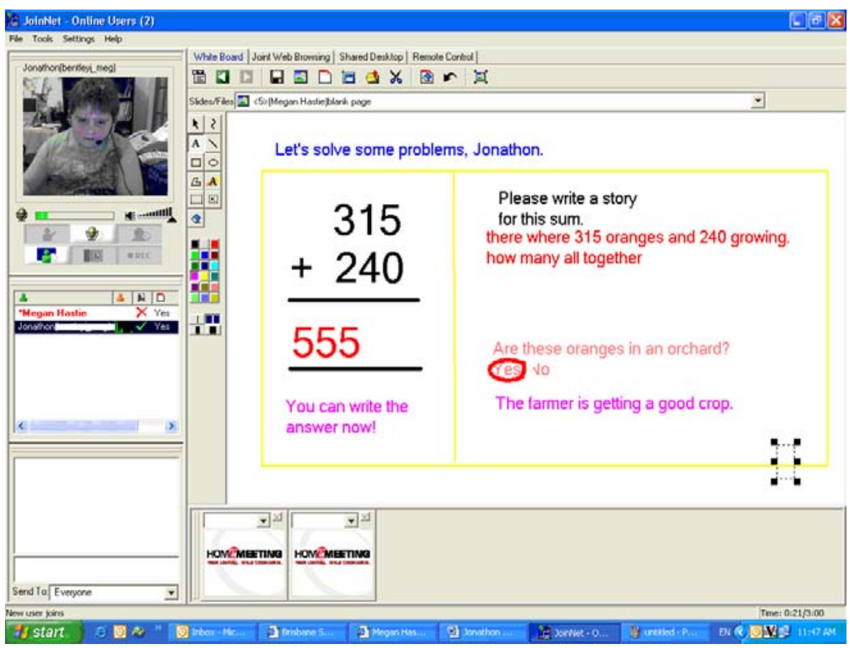

Figure 3. High level cognitive tasks

From this point the trial sought to maximise the interaction between the student and teacher during synchronous cyber lessons. A less didactic approach was adopted. Strategies were trialled to support instruction that demanded demonstrated evidence of visual, auditory and kinaesthetic processing by the student during the lesson. We expected the integration of these three sensory functions to result in higher levels of thinking and learning. This posed instructional design challenges. During 2002-2007 the design of the whiteboard screens evolved such that the student contributed more information and engaged in ‘chat’, both verbal and written, relating to the activity. By contrast, the Figure 3 below shows how instructional design enabled the student to interact in a more spontaneous way. The student’s responses were visual, auditory and kinaesthetic. This demanded a higher level of thinking and contributed to cognitive gain.

We found a direct correlation between the instructional design features illustrated in Figure 3 and higher levels of interactivity by the student. The student provided more information and demonstrated greater levels of understanding of the concepts.

We attribute the teacher’s ability to adopt a less didactic and teacher-directed approach to the design of synchronous cyber lessons to the teacher gaining confidence with the technology of the synchronous cyber classroom. This included greater competence in the establishment of the link with the student, the use of the interactive whiteboard and its tools, and the design of synchronous cyber lessons. Growing confidence with the technology allowed the focus to shift to the pedagogy.

This resulted in higher levels of interaction and collaboration between the student and teacher during the lesson. It meant the teacher and student shared the learning space on the interactive whiteboard. The whiteboard became a colourful, creative and dynamic playground for learning. Input from the student was maximised and resulted in less teacher preparation time. The teaching and learning became ‘real’. The evolution of the lesson format and its associated instructional design features was guided by the students themselves.

We decided to keep the instructional design for the synchronous lessons simple and ‘minimalist’. The focus was on clarity of communication between the student and teacher and was deemed to be the most suitable approach for working with younger students. It provided the students with the freedom to use concrete technological tools, especially the writing tools on the interactive whiteboard, to encode abstract thought. An interesting dichotomy evolved between simplicity in the instructional design and complexity in the cognitive functioning of students. In effect, the teacher and students collaborated in the learning process and the design of lessons. This approach had two major advantages: it was a good way to engage online students, and it was also a good strategy to encourage teachers to take a graduated approach to the adoption of online synchronous teaching.

The simplicity of the approach with its ‘minimalist’ design features was applied to the lesson format and also to each individual screen of the synchronous interactive whiteboard. The increased interaction by the student in the form of visual, auditory and kinaesthetic responses during synchronous cyber lessons was equated with higher cognitive function.

The lesson format usually consisted of three or four screens prepared by the teacher prior to the lesson. Extra screens were added to the lesson as required. Some screens contained a simple one-sentence instruction or idea for the student to read. The remaining space on the screen was purposely left empty and was used for drawing and writing by the student and teacher. Other screens were completely empty and were added as the lesson progressed to provide extra writing space for the student.

As a result, we developed a ten point guideline for ‘best practice’ in instructional design to maximise learning outcomes in the students in our trial:

1. We kept the design simple (minimalist) when we planned the format of the synchronous lesson and for each screen of the interactive whiteboard.
2. We used the first screen of the synchronous whiteboard, along with the webcam (where available) to start the lesson and welcome the student.
3. We used the second screen for the lesson plan.
4. We provided teacher directed activities during the lesson.
5. We used the third and subsequent screens as a working space for activities based on the lesson plan.
6. We gave greater prominence to freehand drawing and keyboard writing on the interactive whiteboard.
7. We balanced interactivity and spontaneity with teacher ‘wait time’.
8. We used the final screen to plan the next lesson.
9. We also used the final screen to praise the student, end the lesson and say farewell.
10. We used email as an adjunct to synchronous cyber lessons.

We applied the ten points to all synchronous cyber lessons with points 1, 2, 3, 8, 9, 10 forming a standard template. This provided students with a predictable format for the lessons and minimised teacher preparation time. The students formed an expectation that the lesson would start with a greeting and a discussion of the lesson plan (the advance organiser). Points 4-7 formed the working space for collaborative learning between the student and teacher. From this stage of the lesson until its conclusion the expectation of the students was that they would work collaboratively with their teacher on self-selected and teacher directed tasks. The teacher was able to provide direct instruction while facilitating the shared ownership of the working space with the students. The lesson conclusion correlates with points 8-10 with acknowledgement of students' effort and learning outcomes and collaborative planning for the next lesson. We describe the guideline in more detail in the following section.

Findings & Discussions

We have identified ten basic instructional design elements for synchronous cyber lessons with students aged 5-8 years. These will now be described in detail:

1. Keep the design simple (minimalist) for the lesson format and for each screen of the interactive cyber whiteboard

- Use the student's name.
- Encourage the student to respond using your name.
- Give thought to your 'persona' as a synchronous cyber teacher and try to simply be yourself.
- Keep verbal and written communication simple for clarity of communication.

2. Start the lesson and welcome the student

- Use the first screen of the interactive whiteboard to greet the student and start the lesson.
- Use webcam, if available, to greet the student and their Home Tutor.
- Use the student's name in both the written and verbal greeting.
- Continue to use the student's name throughout.
- Use one colour for the greeting (blue is good). Write the greeting at the top of the screen.
- Continue to use the same colour throughout the lesson.

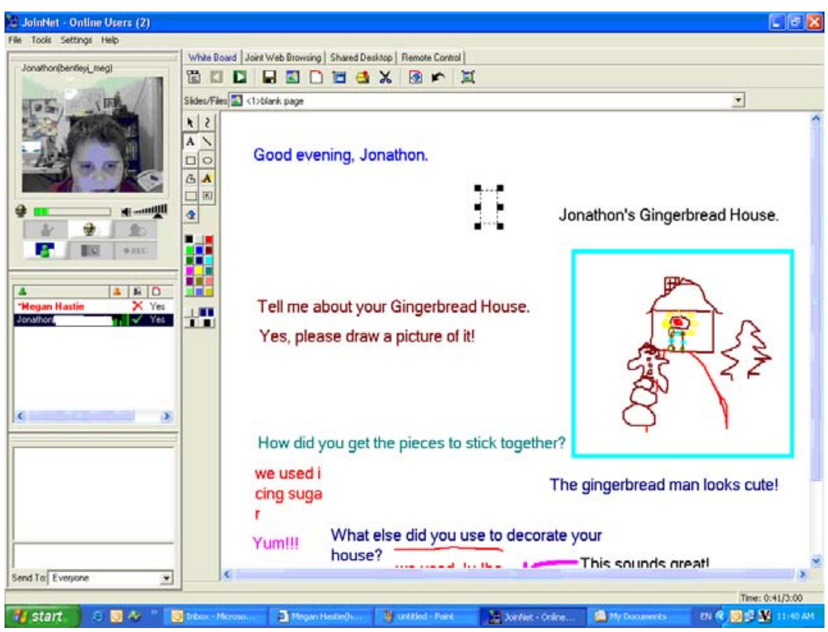

Figure 4. An example of element 2

3. **Use the second screen for the lesson plan**

- Provide the student with an advance organizer based on negotiated content.
- Invite the student and their Home Tutor to nominate content and specific learning for the lesson.
- Confirm the lesson plan with the student and Home Tutor at the start of the lesson or prior to the lesson via email

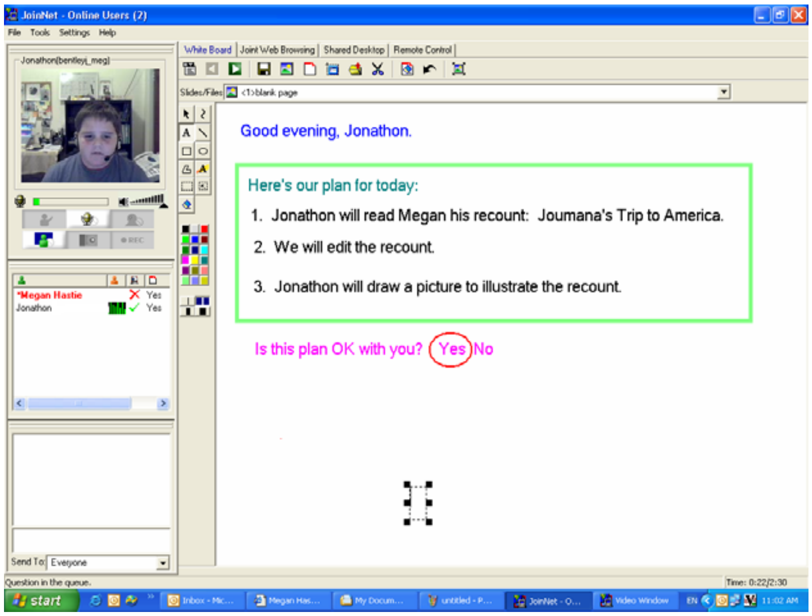

Figure5. An example of element 3

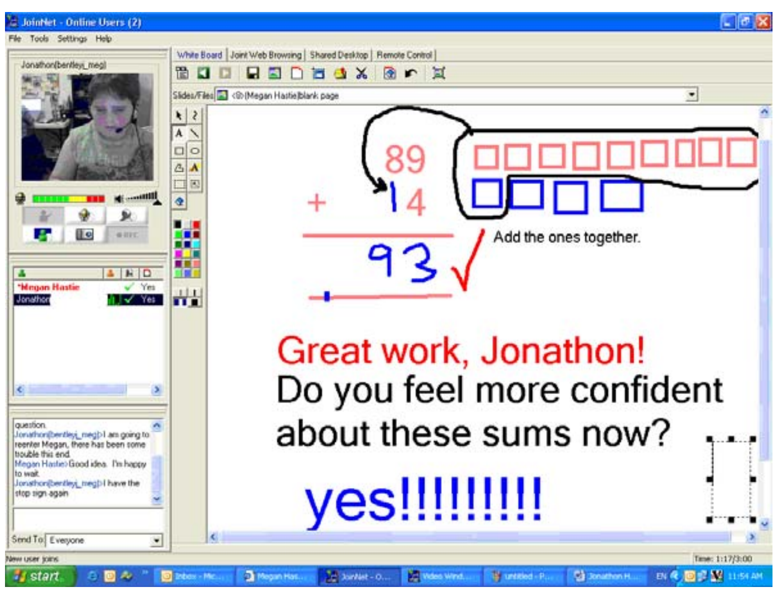

Figure6. An example of element 4

4. **Provide teacher directed activities during the lesson**

- Provide pedagogical input for decisions about content based on observations of the student's progress, child development theory and curriculum requirements.
- Use simple written instructions throughout the lesson, preferably one sentence, placed at the top of the screen.

- Use graphics and photographs as picture clues.
- Share ownership of the empty space on the whiteboard with the student.
- Draw a box on the whiteboard screen to define the working space for more structured activities.
- Use a different colour for feedback and comments to the student (pink is good).
- Write feedback and comments at the bottom or side of the screen or wherever a space can be found that does not overlap the student's written work.

5. Use the third and subsequent screens as a working space for activities based on the lesson plan

- Use the whiteboard as a learning space and 'playground'.
- Add screens as required.

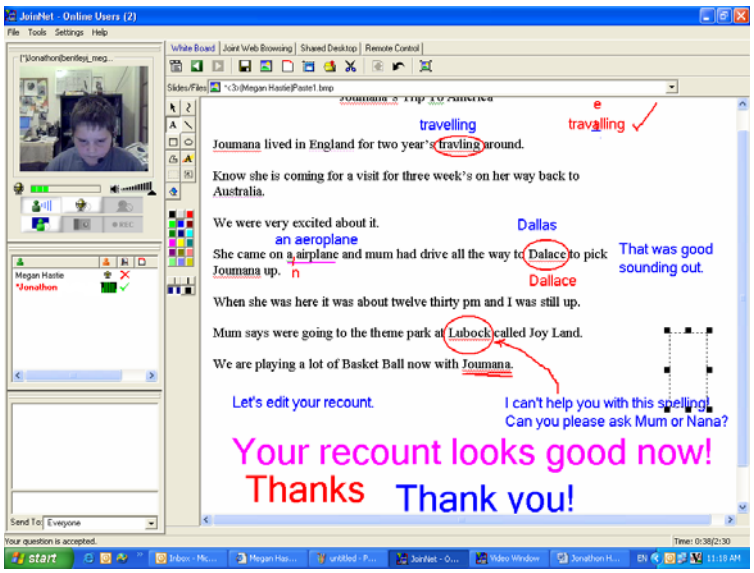

Figure7. An example of element 5

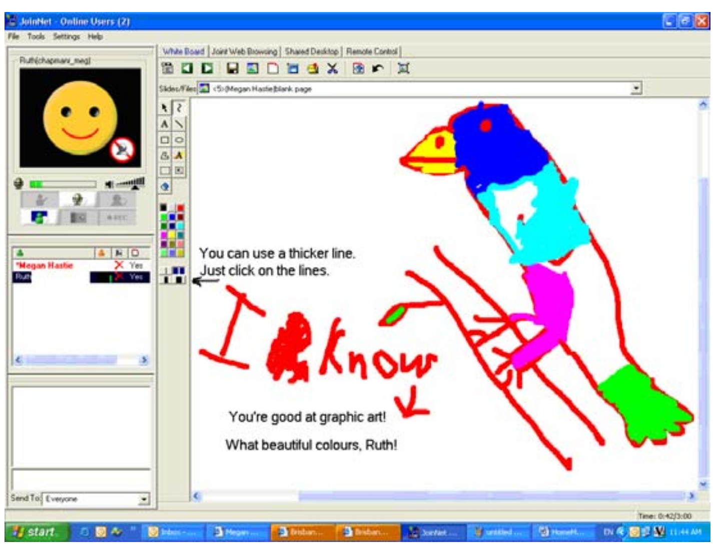

Figure 8. An example of element 6

6. Give greater prominence to freehand drawing and keyboard writing on the whiteboard

- Encourage the student to draw pictures on the whiteboard as a way of developing confidence.

- Use drawing to develop writing skills.
- Encourage the student to use the tools in the toolbar.
- Encourage the student to experiment with colour using the palette.
- Use writing to develop reading skills.
- Encourage the student to develop keyboarding skills.
- Encourage the student to use the graphic tablet.

7. Balance interactivity and spontaneity with teacher ‘wait times’.

- Allow the student time to respond verbally.
- Keep the teacher’s verbal comments simple to accommodate audio lag.
- Write comments and feedback on the whiteboard to compensate for audio lag.
- Repeat verbal comments in writing to restate the message if necessary.
- Use the chat room to communicate with the Home Tutor.

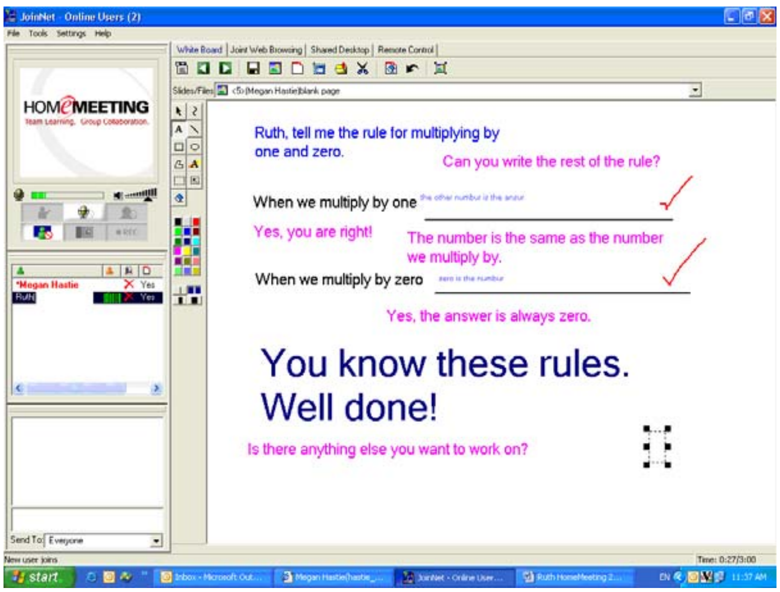

Figure 9. An example of element 7

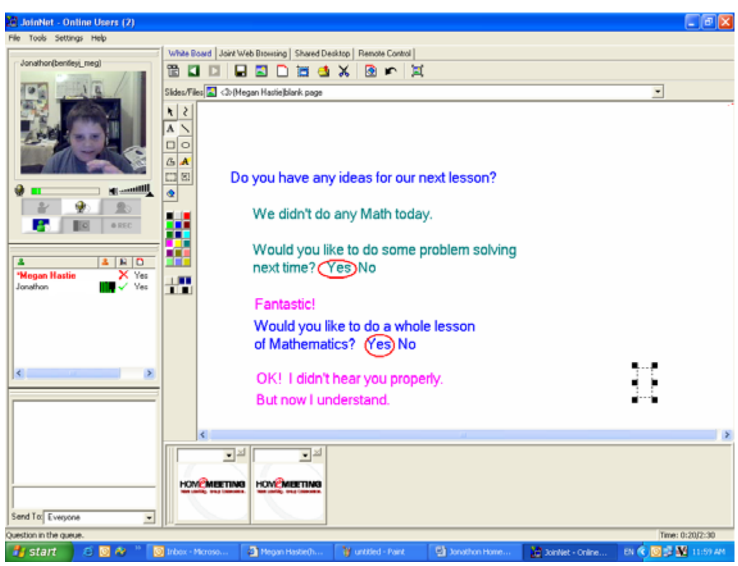

Figure 10. An example of element 8

8. Use the final screen to plan the next lesson

- Negotiate the content for the next lesson with the student and their Home Tutor.
- Provide pedagogical input for decisions about content based on observations of the student's progress, child development theory and curriculum requirements.

9. Use the final screen to praise the student, end the lesson and say farewell

- Give positive feedback to the student. For example, 'You did clever writing today.'
- Tell the student that the lesson is ending
- Say farewell. For example, 'Bye for now. I'll talk to you again soon'.

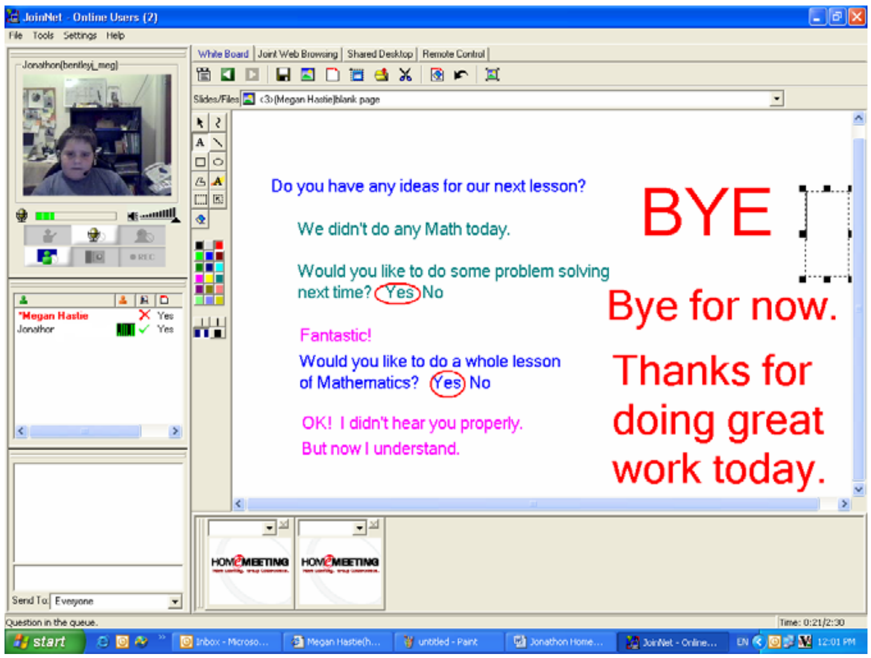

Figure 11. An example of element 9

10. Use email as an adjunct to synchronous cyber lessons

- Use email to confirm the lesson
- Use email to give feedback to the student and Home Tutor after the lesson.

Throughout our trial of synchronous cyber teaching and learning with students aged 5-8 years we found an increased level of interaction between teacher and students. We negotiated the lesson content with the student and their Home Tutors. We used an advance organiser at the start of each lesson to communicate expectations. We were able to cater for students with diverse talents and ways of learning through negotiated curriculum and 'tailor-made' lessons to suit individual needs. We found that the synchronous interactive whiteboard compelled the student and teacher to encode information in a high speed exchange of written responses. Students used the mouse, graphic tablet and keyboard to write on the synchronous interactive whiteboard. Students acquired sophisticated keyboarding skills from an early age, generally by age seven years. Keyboarding enabled the students to participate in the learning process during synchronous cyber lessons in a highly interactive manner.

We believe that the level of interactivity demonstrated by the students in our trial during synchronous cyber lessons was superior to any other learning environment, including face-to-face. The teacher was able to respond immediately to the student using the mouse and keyboard to provide written instructions and feedback to the student on the synchronous interactive whiteboard. The multi-layered and colourful written interactions created by the student and teacher on the synchronous interactive whiteboard became the 'face' of the communication and contributed to the evolution of a social presence that we believe is unique to synchronous cyber lessons. We found that the immediacy of the teacher's verbal and nonverbal behaviours during intense, high speed interaction between the student and teacher resulted in accelerated learning by the students. The tools of the synchronous cyber classroom were observed to contribute to a higher level of efficiency in the mastery of concepts and the completion of tasks by the students. In particular, the students demonstrated higher levels of concentration and increased work rates. We found that the quality and quantity of the work completed by the students, for example, in twenty minute online synchronous lessons could be compared to longer time allocations in traditional classroom settings. The students' time on task was maximised and resulted in enhanced cognitive and affective learning. In terms of engaging students, maintaining high levels of concentration, capitalising on their individual interests and learning styles and simply 'getting-the-job-done' we found synchronous lessons surpassed all other modes of instruction. Although we worked individually with our students we found that the students, who were geographically isolated from their teacher and from one another, were beginning to form a learning community within the Youth Knowledge Network. We anticipate that the students' technologically networked community will continue to grow and that this will result in increased cooperation among our students in the future.

Our guideline for 'best practice' in instructional design in synchronous cyber classrooms is a practical application of the seven strategies identified by Chickering, & Ehrmann (1996). Chickering & Ehrmann suggested educators use technology in instruction to increase interaction between instructors and students, to increase cooperation among students, to ‚increase students´ active learning, to provide prompt feedback to students, to facilitate students´ time on task, to communicate expectations and to provide benefits for students with diverse talents and ways of learning. The synchronous cyber classroom provided the technological tools to apply the strategies as described by Chickering and Ehrmann (1996). But we found there was no manual for teachers to use during synchronous cyber lessons that gave a practical and pedagogically sound guide to the instructional design of such lessons. The guideline was developed, therefore, as a 'user friendly' checklist for teachers who are embarking on synchronous cyber teaching.

In summary, our major finding was the enhanced learning outcomes that we observed in all the students in our trial. We attribute this to the ideal learning environment provided in the synchronous cyber classroom. Students developed higher levels of concentration and memorization as a direct result of the uniquely individual learning process that occurs in synchronous cyber lessons. Students were able to integrate visual, auditory and kinesthetic processes free from the distractions that plague the traditional classroom. We were able to record and quantify the students' learning outcomes as evidenced in their written and verbal responses. Based on our findings we believe an urgent need exists for further research to be undertaken into brain function in early childhood students during lessons in the synchronous cyber classroom. This leads us to the conclusion that synchronous cyber teaching and learning that is informed by best practice in instructional design poses a serious challenge to traditional classroom practices in early childhood education.

Conclusion

A paucity of literature exists on best practice in instructional design for online synchronous cyber lessons with students aged 5-8 years. This paper has attempted to identify 'best practice' in instructional design in the online synchronous cyber classroom. We equated increased interactivity by students in the form of verbal and written responses during synchronous cyber lessons with higher learning outcomes. We developed a guideline for the instructional design of synchronous cyber lessons that would maximise student interaction and result in enhanced learning. The guideline is, therefore, a practical application of best practice strategies and a survival manual for teachers embarking on synchronous cyber teaching.

Essentially we found that when the teacher adopted a simplified and 'minimalist' approach to instructional design: the students contributed significantly more information and demonstrated higher levels of learning. We regard this as 'real' collaborative learning. The students' rate of response was faster and involved an integration of visual, auditory and kinaesthetic processes. We attribute this to the unique and ideal learning environment that is created in the synchronous cyber classroom.

We believe the simplified 'minimalist' approach can be used to encourage more teachers to embark on synchronous online teaching as it helps build confidence in what may be perceived as a highly innovative yet challenging application of technology. It is a carefully considered pedagogical approach to working synchronously with early childhood learners. As such it has the potential to influence best practice in synchronous cyber teaching and learning. In conclusion we say the synchronous cyber classroom outperforms all other modes of instruction. We urge educators to give greater prominence to the synchronous component of online teaching and learning.

Acknowledgement

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