コンピュータ＆エデュケーション**Vol.5**

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●論文概要　(**Japanese&English**)

Java言語による対話的学習支援システムの開発と教育例 鈴木　好夫（室蘭工業大学）　羽生　知浩（東芝）

<概要>

　本研究は、ＷＷＷ上で動作する対話的な学習支援環境について述べている。本システムは、学生と教官間の遠隔授業などでコミュニケーションを可能にするものである。教師は黒板を使用する感覚でPartyChatとPartyDraw機能を使用できる。講義の中で、学生はこれらの機能を使用し随時教師に質問でき、教師も同様な手段を用いて即座に質問に答えることができる。学生のアンケート結果からシステムの評価を行い期待どおりの効果が得られていることが確認できたが、同時にシステムを改善すべき点も明らかになった。これらの対応策についても紹介する。

キーワード：遠隔講義、ＷＷＷ、同時コミュニケーション、グループ学習

Development of the Interactive Learning Support Environment
by Java Language and Educational Examples

Yoshio SUZUKI　　Tomohiro HANIYU

Abstract

　We have developed an interactive support learning environment on the World Wide Web (WWW). This environment enables students and teachers to exchange questions and Answers during distant teaching. During the lecture, teachers can use real-time communication tools to make explanations of the material and students can ask questions using either 'PartyChat' or 'PartyDrow' any time.
　We have confirmed the effects of the system via a questionnaire from the students, but some problems have come up at the same time. This paper also tries to answer them.

Keywords: Distance Teaching, WWW, Simultaneous Communication, Group Learning

祉大学・学生）

<概要>

　本稿は、「知多半島中部地域振興計画策定調査」の学習支援組織として結成された地域情報化研究会の活動について述べる。研究会の主な活動は、地方自治体や地域住民への情報教育をおこなうことである。高齢者宅や福祉施設等のポイントへパソコンを設置し、訪問して情報学習を支援している。訪問形式での学習を進めていく上で考慮すべき点や課題を検討し、今後地域情報化をおこなっていく上で、安価でかつ必要なときに受けることのできる情報教育の支援体制をどう整備していくかを考える。

キーワード：地域情報化　訪問学習　ネットワーク 高齢者福祉　A Report by the Information-Oriented Community Research Group ----As a Part of the Investigation of Middle Chita Peninsula Development Plan Akiko Itokazu

Abstract

　This is a report by the resarch group on information-oriented community, which was organized as a part of the investigation of the middle Chita Peninsula development plan. The group's main function is to offer information learning to thepeople living in the area and local government offices, to set up personal computers in the houses of old people or in welfare facilities. We will try to point out the problems which arise in case of giving information learning by visiting.
　We will also consider an inexpensive and easy way to support the system of information learning.

Keywords:information-oriented　community, learning by visiting, network welfare of the aged

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卓球のコーチングにおけるコンピュータの利用

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<概要>

　卓球競技においてコーチが選手にアドバイスを与える際にデータを示して指示を与えることはほとんどない。本研究の目的は、卓球の試合の中でのインターバルにおいて、コーチと選手が情報交換を効果的に行うためにコンピュータを用いる方法を開発することである。この方法は日本卓球協会が「理想戦術モデル」として示した「先手攻撃」について記録、評価を行った。その結果、１）この方法により、コーチは短時間に有効な情報を選手に与えることが出来た。２）コーチと選手が同じデータを得、共通理解を持つことで実践場面において有用であった。３）他の戦型（たとえばカットマン）の場合などの分析方法は今後の課題である。

キーワード：卓球、コーチング、リアルタイム、コンピュータ、戦術 The making of use computer on coaching of Table Tennis in a field〜Depending on the reinforcement project of Japan Table Tennis Association〜Yukihiko USHIYAMA Kazuto YOSHIDA

Abstract

　When a coach advises a player in table tennis, it is very rare for a coach to indicate the data collected in the game to cofirm his mention. The purpose of this study was to develop a system for the analysis of a table tennis game using a computer in order to exchange information efficiently between a coach and a player during the intervals between games. This system was made to record the coach's evaluation of thier player's tactics under the "ideal tactics model to win", indicated by the reinforcement committee of the Japan Table Tennis Association, and to output them immediately. The results are summarized as follows:
1) The coach could give detailed and efficient information to the player in a short time by using this system.
2) On the condition that the player and the coach both understood the view of the output result exactly, this system was considered to have reached the stage for practical use in a field.
3) To develop other game analysis for defensive players (e.g.choppers) is the subject for a future study.

Keywords:table tennis, coaching, real time, computer, tactics

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『ハイパーテキスト』化による情報リテラシーの学習

妹尾　堅一郎（産能大学）

＜概要＞　ハイパーテキスト化された後のホームページを活用した教育手法に対し、「ハイパーテキスト化する作業自体」の持つ教育効果にはあまり注目がなされていないようである。ハイパーテキスト化の可能性に着目し、実際に学生にハイパーテキストを作成させるとどのような教育効果があがるかを検討するために、いくつかの授業において具体的実践を試みた。本論では、これらのハイパーテキスト化の実践例を通じて、何が修得できたのかを確認すると共に、その教育上の位置づけの考察を通じて、コンピュータ利用教育の持つ可能性一般について触れる。

キーワード：ハイパーテキスト化、情報リテラシー、コンピュータスキル、プレゼンテーション、学習環境、学ぶ仕掛け Learning of 'Information Literacy' by Making Hypertext: Homepage making as 'Learnig device' Ken SENOH

Abstract

Compared to the usage of hypertext in classrooms, the educational effect of the 'making process of hypertext' has not yet received much attention. Experiments were carried out to examine what kind of educational effect it would have on the students when they were required to make hypertext documents. We would like to see what skill and 'lieteracy' students acquired through the experience of making hypertext, consider the educational meaning of them, and think about the use of computers in education.

Keywords:Making of hypertext, Information literacy, Computer skill, presentation, Learning environment, Learning device

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数学教育と**Mathematica**—魔法陣に遊ぶ

植野　義明（東京工芸大学）

＜概要＞
コンピュータの導入によって、正確な計算の訓練だけに重点が置かれすぎていたこれまでの数学教育の形態は終焉を告げるだろう。新しい教室環境の下では、仮説を立て、実験を行い、検証するという数学本来の楽しさを、教師も生徒もいっしょになって体験できる。そのような活動のためのひとつの教材例として、この論文では日本の伝統数学から魔方陣を取り上げた。

キーワード： Mathematica、数式処理、数学教育、魔方陣、新しい学力観 Mathematics Education with bfit Mathematica---A Magical Magic Square Tour Yoshiaki Ueno

Abstract

By the introduction of computers, the conventional style of mathematics education, which put stress, most exclusively, on training in accurate calculation, will come to an end. In a new classroom environment, both the teachers and the students together will be able to experience the genuine delight of mathematics---that of hypothesizing, experimenting and verifying. As a sample material for such activities, this paper will take up magic squares, a time-honored ject from the tradition of Japanese mathematics.

Keywords: Mathematica, computer algebra, mathematics education, magic square, Monbush^o's ``new outlook on learning skills"

ONTENTSに戻る

Vol.5の特集中の「Me and Media というコースを通じての学習と指導の再考」
（ヒレル　ワイントラウブ　同志社国際中高等学校）は日本語で掲載しておりますが、原文は英語です。以下に紹介します。

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Rethinking Teaching and Learning through a course called "Me and Media"

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Keywords: metaphors for teaching & learning, media, design

Key Questions: What metaphors do we use to talk about teaching and learning?
                How do we design our learning environments?

In this paper, I would like to start with the idea that language is metaphoric, because words themselves aren't events or things; they aren't even ideas! But rather words are just symbols. We all "know" this, but still we often act as though the word itself is the reality rather than its representation.1 Examining the words we use is a way of getting at some of our unconscious beliefs. Changing the words or metaphors we use can also affect our thinking, just as putting on a new pair of glasses would affect our vision.2 I'd like to use this paper as a doorway into thinking about teaching and learning in general and about the design of a specific course called "Me and Media".

   Let's begin by having a look at some of the typical ways we talk about teaching and learning. 3 1) "I told them (the students) the answers, but when test time came, I found out that none of them had been listening." 2) "Last week I gave the class an assignment. Everything they needed to know was there for them in the book, right in front of their eyes and they still didn't get it." 3) "You know, I just can't manage the class. I covered those pages last week, but they don't seem at all ready to move on to the next chapter now." 4) "The students aren't really paying attention to me, so nothing is being learned."

   None of these quotations are particularly unusual. Teachers or professors often talk like this. But if we look closely at the way language is being used to talk about what it means to "know", what it means to "communicate" or what it means to "learn", we can discover a lot about the underlying philosophy about teaching and learning of the people who use similar words or phrases.

   #1: I told them (the students) the answers, but when test time came, I found out that none of them had been listening. The use of the word "tell" "the answer" and "listen" are important expressions. If I tell you something, does that mean you will understand it? Does my understanding come directly from your telling? How about the use of "the answer". It implies that the answer is what is important and that there is one acceptable answer to this person. In so much of our schooling process, the emphasis is placed on "answers". What's the "right" answer? Very little value is given to "wrong answers" which can often lead to much understanding about thinking processes and meaning making in learners. In thinking about right answers, the focus is on a result, rather than a process, so both teachers and students give value to memorizing a particular piece of acceptable information. Furthermore, the emphasis on what happens in "test time" as proof of learning is certainly the most common way evaluating learning, but not our only choice.

   #2: Last week I gave the class an assignment. Everything they needed to know was there for them in the book, right in front of their eyes and they still couldn't get it. This idea of "giving" an assignment and the information in it is an interesting metaphor. Is information something that can be given from one person to another in the same way as a physical object. Can I for example, give you the information or knowledge from a book in the same way as I can give you the book itself? Next, the "giving" metaphor is continued with the use of the word "get". After all, if I give you something, it's only natural that you get it, right? In the case of a book - if I hand it to you and you take it, the next day, you won't come and tell me, "I didn't get it." So if a teacher tells you an idea (gives it to you), and you seem to take it in, the next day or even the next week, she doesn't expect you to say, "I didn't get it." She might say, "I told you [gave it to you?] last week - what do you mean you don't understand [get it]!"

   #3: You know, I just can't manage the class. I covered those pages last week, but they don't seem at all ready to move on to the next chapter now. The expression "manage the class" gives much information about the way the speaker thinks about the teaching and learning process. A teacher who sees himself or herself as a manager or controller, will think very differently than teachers who see themselves as designers or guides or helpers or supporters. A manager would plan a definite beginning and end to the lesson. A manager will usually focus on sequence and schedule and "covering" the material on time. This idea of "covering" some work is a common expression used to talk about what happens in a classroom, especially by teachers who try to "manage" what goes on there. The expression puts an emphasis on following a plan, more than learning, which some people feel is impossible to prescribe for a group of 40 different minds. Just think about how different a metaphor is the

expression - "Let's try to uncover what this writer is trying to say." or "Let's try to discover what the writer is talking about." The expression "...move on to the next chapter." gives the impression that learning is a linear process. We start at point A and move to point B after it is "covered." Another metaphor could be a bunch of little dots to"jump to" or many strands to "interweave". Many metaphors could be used to say something about the process of learning.

#4: The students aren't really paying attention to me, so nothing can be learned..... The expression "The students don't pay attention." puts all of the responsibility on the students who are not paying something that is expected of them. This teacher might also have said," I'm not able to catch their attention", using a very different kind of metaphor, along with a different onus of responsibility. Also, if we think about teaching and learning as a communicative, social and interactive process, then we wouldn't think about paying attention to the teacher as being the main learning activity. This is a very "instructionalist" way of talking about the learning process. However, if we think of "constructing" meaning, then we aren't very likely to focus on the teacher, but rather each learner's building or meaning-making process.

These kind of metaphors give us a certain way of looking at teaching and learning.4 Person-ally, I like metaphors which show more respect for the styles, feelings and opinions of all the different people involved. My classes are developed more on these ideas. Two metaphors I have been using over the years is "learning as conversation" and "learning as community." Recently I have been using the ideas of learners as "players" and learning as "hard fun"; that is, engaging and enjoyable because it is challenging.5 Another metaphor I'm particularly fond of is learning as a kind of dancing. There are many styles of dancing, just as there are many styles of learning, and I try to support various individual styles in my class. But the kind of dancing/learning that particularly design my classes for is a very interactive, collaborative one. We need to be involved and cooperate with each other in order to dance well and to develop our dancing further. We need to be enjoying and taking part. It should be lively and fun. But also needs quiet, serious times of listening and using various senses. Our body is involved as well as our mind.

Another metaphor that I use is of the teacher as designer and the classroom as flexible space whose mood and activities can be given many different shapes. Thinking of students as co-designers of the learning space strongly affects the way of looking at our interaction. Also, thinking of the teacher as co-learner and all of us as "players" on a level field, rather than some people's knowledge being more valuable than others, very much changes what we do and how we do it. Such metaphors challenge the traditional hierarchical approach of Japanese culture.

metaphors in action Now I'd like to move from this idea of metaphors that underlie our teaching, to an actual project "Me and Media" which I have been developing with students and teachers during the past seven years. The purpose of this class, is not to "give" the students certain information or to "cover" a certain curriculum in order to students to become "media literate" or "computer literate", two very popular expressions going around ministries of education these days.6 No indeed, quite the opposite: the purpose is to help learners (including the teacher!) think about media widely, to uncover some of the confusion around the concept and the power of "media", and to help them discover and create some of their own ideas about media. To this end, the main job of a teacher is to create an atmosphere in which students can design their own meanings. and learn to explore them deeply through exchange of ideas with others. This also means learning how to gather, express, and present your ideas through a variety of media. This has been one goal of "Me and Media" classes. At the same time, we need to develop our awareness of how mass media affects and uses us. It is amazing and indeed frightening that students who are surrounded by all kinds of mass media can graduate from 12 or even 16 years of "schooling", without having a single discussion about important media issues.

I haven't said much about the details of our "Me and Media" class.7 There is a reason for this. I have no set curriculum. There's nothing for anyone to copy down and try to repeat somewhere else. What there is, is a mood. To really feel this mood, you need to visit our class, which you are welcome to do! I have put some pictures in of our learning environment to try to give you a feeling of the atmosphere, but such pictures are always inadequate. So I have also included some writings and drawings from the students to help with this.

As for our curriculum, it changes quite a bit each year. It isn't a set of daily activities or readings that I predesign and then impose on the students, but develops out of our relationship together. Each year the students are different, I am different, too, having learned something from the previous year's class and lived a year longer in our world, hopefully with my eyes somewhat open. Also our technology has changed radically during the six years of the class. In 1992, the first year of "Me and Media", we started with enough computers for students to use in groups of 3-4 and one computer connected to a 1200 baud modem. In 1995 we had 10 computers connected to a 64,000 baud line. Presently, every student can use a computer which is networked to a T1 (1,500,000 baud) line. At first we had two

8mm cameras. Later we bought a digital still camera. Then we added a hi-8 camera and two more digital still cameras. Now we have four more digital still cameras, and a digital video camera in addition to our older equipment. We are exploring video conferencing and putting up video and audio files on our homepages. These choices were not available to us a few years ago. Still, technology is not the basis for our thinking about media; in fact, quite the opposite - I consider it extremely important to raise the awareness of students about the value of "personal media" and "unplugged media". 8

But the most important thing is the total design of this class, which is more a mood than a curriculum, more a context than a sequence. The most important thing that I as a teacher could provide my students is not knowledge itself, but a place where they can create their own knowledge. This environment must be one where the focus is not on a specific point of knowledge such as a predefined idea or answer, but rather on the process of building meaning and ideas. Also, the environment should be one which encourages certain attitudes on the parts of the learners. One is to be curious. Another is not to be discouraged and not to avoid confusion. Confusion is necessary in order to move from a safe idea that we think we understand, to a newer and deeper understanding of something. If we don't feel confused, it means we are never having new thoughts.

To this end, I have tried to create a space where students could listen to a wide range of ideas, be exposed to many kinds of media, to challenge and change their ideas about media which, at the beginning of our class, is usually quite restricted; for example, limited to thinking about media as only technical or "mass media".

Let me tell you some of the activities our students have done together in our Me and Media Class over these past seven years: 1) Taking a "blindfold walk" - Making pairs and taking a walk with one person's eyes covered and the other leading him/her through a path, up a hill and around a temple. Eating something, listening carefully to sounds, smelling and touching various things without being able to see them.. Then we wrote and talked about this experience. 2) Watching various films with themes relating to media: sometimes only in our class; sometimes in different classes together for example, in Holland, Germany and Japan. We always tried to relate these films to our own media experience.9 3) Publishing a class newspaper to share our ideas about media gave us an opportunity to see how different ideas and perspectives were valued, and that there was not a "right answer" in this discussion where making our own meanings was valued. 4) Creating a film about our school to be shown on KBS (Kyoto Broadcasting System). 5) Creating our own advertisements and sharing them with each other. 6) Discussion about the book "The Age of Missing Information", which contrasts media coming from cable tv and media coming from a weekend camping trip.10 7) Taking a rather simple message and preparing to present it to each other through different media - only visually, only by voice, in person, on film - in order to examine different experiences in delivering a message and receiving it. 8) Developing our own homepages to both expand and exchange our thoughts about various forms of media. (See http://www.intnl.doshisha.ac.jp/projects/me-dia/). 9) Watching a film of a student dance performance at our school shot from different perspectives and then discussing issues of points of view and perspective and control in media. Those who participated in the dance and those who were observers drew the event from memory. The topic of "memory as media" was introduced. 10) Thinking together about presentation of self as media. Discussing fashion, issues of "beauty" and "sexiness" and how media succeeds in defining what is attractive to us. 11) Visiting an old people's home and discussing various media issues with the resid-ents. We were also able to think about interviewing as an important media form. By coming into mindful contact with a wide variety of media and finding ways to present our own ideas about these experiences, awareness grew among us.

Let me share some of my students' thinking as they redefined and created media over these past seven years: - My new idea is that every object, not only physical, can become media. For example, clouds show weather and trees show us seasons. We are surrounded by media all day. This is a new idea which I've never noticed.

- A plant is media because they try to transmit many kinds of information; for example, seasons, smells, color, sort... But only we don't notice. We can also tell something about the atmosphere of a house or family by the plants around that place. Or the personality of the person who chooses them.

- Watching the movie "Quest for Fire" made me realize that since the birth of human, media has influenced our lives. The movie "They Live" showed us how scary media can be. I never thought of media taking us over or the dangers it creates, but watching these movies changed my ideas.

In a journal entry called, "What is Truth?" one student wrote: - There is a question 'how much of surrounding is truth and how much is not?' To this question, each of us has to answer separately because we each have to be responsible for what we receive as truth. We have to look closely at the information and make decisions on what's

true and not.

After taking our Blindfolded walk, two students wrote:

- At first I thought media was just technology. But after we took that blindfolded walk, I found at that we can use our smell, touch, and senses to get information. I noticed that our body is part of media.

- I consider myself as media, too. My feelings always change and tells me what I need and what I want to do. Sometimes I can't understand myself. For example, why I like him so... why I hate her, and so on.

One boy, who was a rather unenergetic student in most classes, wrote very stimulating comments in his journal: - Though we think that we use telephones, I think that we are used by them. What do you think?" I wrote: "Yes, I think so too. I always jump up when I hear it. I used to take the phone off the hook when I was eating, but now I never do." 11

- He also drew this journal about "Face as Media", which was his own choice of topics. While these observations are not particularly "deep" academically, I think they had a powerful impact on the students understanding of "media" and themselves as "media."

About "Quest for Fire", a movie about prehistoric human life, two students wrote: - What is media for ape men? They didn't have language and writing. How did they get information? But information for them is the way to live in harsh nature. The information which they could get were sounds (a cry) smell and views. In other words, their physical organs perform the part of media. - How did ancient people get any media? Was it told them by nature? There was no mirror long long ago. How did they see their faces? What did they do without understanding it.

Other students wrote about new thoughts they had as they developed new concepts. - Friends as Media: A year has passed since I got into this school I learned many things from my friends. I know the things which I learned from my friends will keep in my mind more than any other things - for example, reading, watching and hearing from teachers.

- TV shows strongly influence people because many people watch them. If people who appear on tv make a fool of other people, some viewers may become persons who think nothing of hurting other people. This is a big problem. I want people who appear on tv to realize that they greatly influence people and look at their job again.

Students spent a summer looking at advertisements in magazines, newspapers and on tv. They then wrote journals reflecting on these experiences and brought in videos or copies of these commercials to be shared with others in class. Looking at such advertisements with new eyes, they were able to see the hidden messages, such as "If you come to this juku, you can reach the dream of your future." or "if you buy clothes at this store, you can be prettier than you are now." or "if you use this credit card, you can buy! buy! buy!" The student made a comment about the ads encouraging us to have a particular kind of mentality.

The social experiences both inside and outside of our classroom had a powerful effect on the students, in ways that just sitting in a classroom and reading from a ministry approved textbook could not have. Many students said something similar to this one: - I have changed my ideas about media through reading the journals of my classmates and also through the experience of our blindfold walk. One student in her drawing to try to represent her thoughts about media noticed that gossip was a powerful form of media. This was surprising to all of us, who never considered ourselves as "doing media" when we whispered something in a friend's ear.

All of these ideas could have been told to the students by a teacher, but I think that would have little impact on anything but their short-term memory. However, they discovered these and many more new ways of seeing media through their own experiences. I believe that this has much more long term value for their development as thinking, caring members of a future human society. I hope that my class can continue to help them think about themselves and their world more deeply.

Credits: Photos taken by the author. "media tree" by Tomomi Nagasako "media faces" by Genki Ohuchi "media bullying" by Keiko "gossip as media" by Mika "blindfold walk" by Chika Nagasakiya

Appendix: Memory as Media.

This is particularly true the way we talk about the "meaning" of a concept. Usually it's the meaning of the word representing the concept that we think about. But for deep understanding, we need be developing our meaning of the concept, which naturally starts off as something vague and hazy, but can become clearer through the social process of discussion and construction. 2 See the work of George Lakoff to get a good introduction to the importance of metaphors in the way we think about things. Particularly his book, Metaphors We Live By, written with Mark Johnson and published by the University of Chicago Press, 1980. Lakoff was also responsible for writing a powerful letter circulated around the world by email about metaphors and war and how the American people were being led to think about the Iraq situation in a particular way through the metaphors provided by American media and politicians. 3 Dealing with metaphors poses a particularly interesting situation in a translated paper! Getting a similar feeling in different cultures- if indeed it exists - as you move from one language to another is a great challenge for the writer and translator to work together. For this paper, these quotes will be in both languages. 4 For further discussion on ways of looking at education through the language we use, see the work of Paulo Freire, particularly Pedagogy of the Oppressed, Continuum Press, NY. 1970, pp. 57-59. See also, Freire, Education for Critical Consciousness, Continuum Press, NY, 1973, p.81. 5 I first heard this expression from Seymour Papert, who attributed it to a young learner in Boston. 6 I'm quite worried about any course created by a ministry or board if it is in the form of a detailed curriculum, rather than a list of questions and ideas to be explored in a variety of ways by teachers and learners. Forcing a detailed curriculum on a teacher shows the same lack of respect for the teacher's intelligence and experience, that a teacher shows to the students by imposing his/her ideas on them. 7 An article and pictures have been published about our class in the first year of its development. Please see Journal of Learning and Evaluation, "Imi no Keisei o Hakaru Ego no Gakushu" (Creating Meaning Through English Learning), Saga, Hiroo. Issue #12, Winter, 1992, pp.68-77 8 I began using the expression "personal media" a number of years ago, in order to contrast with impersonal or mass media. I also wanted students to be aware of their own minds, spirits, dreams, families, and friends as media. I first heard the expression "unplugged media" used by Nobuyuki Ueda, Professor at Konan Women's College, Kobe. We have working on ideas related to this concept together during the past ten years. 9 For a list of such films, please write to the author at: hillelw@intnl.doshisha.ac.jp 10 McKibben, Bill Age of Missing Information, Random House, NY, 1992. Published in Japan as Joho so Shitsu no Jidai, published by Kawade Shobo Shinsha, 1994. 11 As much as my time allowed, I tried to engage in a conversation with my students, through their journals, our class newspaper, email and our class discussion - responding to their ideas, encouraging their thinking and trying to share my own experiences with them. Thus, the "teacher" becomes part of the conversation.

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C O N T E N T S

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Development of the Interactive Learning Support Environment by Java Language and Educational Examples

Yoshio SUZUKI　　Tomohiro HANIYU

Abstract

　We have developed an interactive support learning environment on the World Wide Web (WWW). This environment enables students and teachers to exchange questions and Answers during distant teaching. During the lecture, teachers can use real-time communication tools to make explanations of the material and students can ask questions using either 'PartyChat'or'PartyDrow'any time.
　We have confirmed the effects of the system via a questionnaire from the students,but some problems have come up at the same time. This paper also tries to answer them.

Keywords: Distance Teaching, WWW, Simultaneous Communication, Group Learning

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A Report by the Information-Oriented Community Research Group
----As a Part of the Investigation of Middle Chita Peninsula Development Plan

Akiko Itokazu

Abstract

　This is a report by the resarch group on information-oriented community, which was organized as a part of the investigation of the middle Chita Peninsula development plan. The group's main function is to offer information learning to thepeople living in the area and local government offices, to set up personal computers in the houses of old people or in welfare facilities. We will try to point out the problems which arise in case of giving information learning by visiting.
　We will also consider an inexpensive and easy way to support the system of information learning.

Keywords:information-oriented　community, learning by visiting, network welfare of the aged

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The making of use computer on coaching of Table Tennis in a field
～Depending on the reinforcement project of Japan Table Tennis Association～

Yukihiko USHIYAMA Kazuto YOSHIDA

Abstract

When a coach advises a player in table tennis, it is very rare for a coach to indicate the data collected in the game to cofirm his mention. The purpose of this study was to develop a system for the analysis of a table tennis game using a computer in order to exchange information efficiently between a coach and a player during the intervals between games. This system was made to record the coach's evaluation of thier player's tactics under the "ideal tactics model to win", indicated by the reinforcement committee of the Japan Table Tennis Association, and to output them immediately. The results are summarized as follows:

1) The coach could give detailed and efficient information to the player in a short time by using this system.

2) On the condition that the player and the coach both understood the view of the output result exactly, this system was considered to have reached the stage for practical use in a field.

3) To develop other game analysis for defensive players (e.g.choppers) is the subject for a future study.

Learning of 'Information Literacy' by Making Hypertext:
Homepage making as 'Learnig device'

Ken SENOH

Abstract

Compared to the usage of hypertext in classrooms, the educational effect of the 'making process of hypertext' has not yet received much attention. Experiments were carried out to examine what kind of educational effect it would have on the students when they were required to make hypertext documents. We would like to see what skill and 'lieteracy' students acquired through the experience of making hypertext, consider the educational meaning of them, and think about the use of computers in education.

Mathematics Education with bfit Mathematica
---A Magical Magic Square Tour

Yoshiaki Ueno

Abstract

By the introduction of computers, the conventional style of mathematics education, which put stress, most exclusively, on training in accurate calculation, will come to an end. In a new classroom environment, both the teachers and the students together will be able to experience the genuine delight of mathematics---that of hypothesizing, experimenting and verifying. As a sample material for such activities, this paper will take up magic squares, a time-honored ject from the tradition of Japanese mathematics.

Rethinking Teaching and Learning through a course called
"Me and Media"

Hillel Weintraub

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Key Questions: What metaphors do we use to talk about teaching and learning?
              How do we design our learning environments?

In this paper, I would like to start with the idea that language is metaphoric, because words themselves aren't events or things; they aren't even ideas! But rather words are just symbols. We all "know" this, but still we often act as though the word itself is the reality rather than its representation.1 Examining the words we use is a way of getting at some of our unconscious beliefs. Changing the words or metaphors we use can also affect our thinking, just as putting on a new pair of glasses would affect our vision.2 I'd like to use this paper as a doorway into thinking about teaching and learning in general and about the design of a specific course called "Me and Media".

Let's begin by having a look at some of the typical ways we talk about teaching and learning. 3 1) "I told them (the students) the answers, but when test time came, I found out that none of them had been listening." 2) "Last week I gave the class an assignment. Everything they needed to know was there for them in the book, right in front of their eyes and they still didn't get it." 3) "You know, I just can't manage the class. I covered those pages last week, but they don't seem at all ready to move on to the next chapter now." 4) "The students aren't really paying attention to me, so nothing is being learned."

None of these quotations are particularly unusual. Teachers or professors often talk like this. But if we look closely at the way language is being used to talk about what it means to "know", what it means to "communicate" or what it means to "learn", we can discover a lot about the underlying philosophy about teaching and learning of the people who use similar words or phrases.

#1: I told them (the students) the answers, but when test time came, I found out that none of them had been listening. The use of the word "tell" "the answer" and "listen" are important expressions. If I tell you something, does that mean you will understand it? Does my understanding come directly from your telling? How about the use of "the answer". It implies that the answer is what is important and that there is one acceptable answer to this person. In so much of our schooling process, the emphasis is placed on "answers". What's the "right" answer? Very little value is given to "wrong answers" which can often lead to much understanding about thinking processes and meaning making in learners. In thinking about right answers, the focus is on a result, rather than a process, so both teachers and students give value to memorizing a particular piece of acceptable information. Furthermore, the emphasis on what happens in "test time" as proof of learning is certainly the most common way evaluating learning, but not our only choice.

#2: Last week I gave the class an assignment. Everything they needed to know was there for them in the book, right in front of their eyes and they still couldn't get it. This idea of "giving" an assignment and the information in it is an interesting metaphor. Is information something that can be given from one person to another in the same way as a physical object. Can I for example, give you the information or knowledge from a book in the same way as I can give you the book itself? Next, the "giving" metaphor is continued with the use of the word "get". After all, if I give you something, it's only natural that you get it, right? In the case of a book - if I hand it to you and you take it, the next day, you won't come and tell me, "I didn't get it." So if a teacher tells you an idea (gives it to you), and you seem to take it in, the next day or even the next week, she doesn't expect you to say, "I didn't get it." She might say, "I told you [gave it to you?] last week - what do you mean you don't understand [get it]!"

#3: You know, I just can't manage the class. I covered those pages last week, but they don't seem at all ready to move on to the next chapter now. The expression "manage the class" gives much information about the way the speaker thinks about the teaching and learning process. A teacher who sees himself or herself as a manager or controller, will think very differently than teachers who see themselves as designers or guides or helpers or supporters. A manager would plan a definite beginning and end to the lesson. A manager will usually focus on sequence and schedule and "covering" the material on time. This idea of "covering" some work is a common expression used to talk about what happens in a classroom, especially by teachers who try to "manage" what goes on there. The expression puts an emphasis on following a plan, more than learning, which some people feel is impossible to prescribe for a group of 40 different minds. Just think about how different a metaphor is the expression - "Let's try to uncover what this writer is trying to say." or "Let's try to discover what the writer is talking about." The expression "...move on to the next chapter." gives the impression that learning is a linear process. We start at point A and move to point B after it is "covered." Another metaphor could be a bunch of little dots to "jump to" or many strands to "interweave". Many metaphors could be used to say something about the process of learning.

#4: The students aren't really paying attention to me, so nothing can be learned..... The expression "The students

don't pay attention." puts all of the responsibility on the students who are not paying something that is expected of them. This teacher might also have said," I'm not able to catch their attention", using a very different kind of metaphor, along with a different onus of responsibility. Also, if we think about teaching and learning as a communicative, social and interactive process, then we wouldn't think about paying attention to the teacher as being the main learning activity. This is a very "instructionalist" way of talking about the learning process. However, if we think of "constructing" meaning, then we aren't very likely to focus on the teacher, but rather each learner's building or meaning-making process.

These kind of metaphors give us a certain way of looking at teaching and learning.4 Person-ally, I like metaphors which show more respect for the styles, feelings and opinions of all the different people involved. My classes are developed more on these ideas. Two metaphors I have been using over the years is "learning as conversation" and "learning as community." Recently I have been using the ideas of learners as "players" and learning as "hard fun"; that is, engaging and enjoyable because it is challenging.5 Another metaphor I'm particularly fond of is learning as a kind of dancing. There are many styles of dancing, just as there are many styles of learning, and I try to support various individual styles in my class. But the kind of dancing/learning that particularly design my classes for is a very interactive, collaborative one. We need to be involved and cooperate with each other in order to dance well and to develop our dancing further. We need to be enjoying and taking part. It should be lively and fun. But also needs quiet, serious times of listening and using various senses. Our body is involved as well as our mind.

Another metaphor that I use is of the teacher as designer and the classroom as flexible space whose mood and activities can be given many different shapes. Thinking of students as co-designers of the learning space strongly affects the way of looking at our interaction. Also, thinking of the teacher as co-learner and all of us as "players" on a level field, rather than some people's knowledge being more valuable than others, very much changes what we do and how we do it. Such metaphors challenge the traditional hierarchical approach of Japanese culture.

metaphors in action Now I'd like to move from this idea of metaphors that underlie our teaching, to an actual project "Me and Media" which I have been developing with students and teachers during the past seven years. The purpose of this class, is not to "give" the students certain information or to "cover" a certain curriculum in order to students to become "media literate" or "computer literate", two very popular expressions going around ministries of education these days.6 No indeed, quite the opposite: the purpose is to help learners (including the teacher!) think about media widely, to uncover some of the confusion around the concept and the power of "media", and to help them discover and create some of their own ideas about media. To this end, the main job of a teacher is to create an atmosphere in which students can design their own meanings. and learn to explore them deeply through exchange of ideas with others. This also means learning how to gather, express, and present your ideas through a variety of media. This has been one goal of "Me and Media" classes. At the same time, we need to develop our awareness of how mass media affects and uses us. It is amazing and indeed frightening that students who are surrounded by all kinds of mass media can graduate from 12 or even 16 years of "schooling", without having a single discussion about important media issues.

I haven't said much about the details of our "Me and Media" class.7 There is a reason for this. I have no set curriculum. There's nothing for anyone to copy down and try to repeat somewhere else. What there is, is a mood. To really feel this mood, you need to visit our class, which you are welcome to do! I have put some pictures in of our learning environment to try to give you a feeling of the atmosphere, but such pictures are always inadequate. So I have also included some writings and drawings from the students to help with this.

As for our curriculum, it changes quite a bit each year. It isn't a set of daily activities or readings that I predesign and then impose on the students, but develops out of our relationship together. Each year the students are different, I am different, too, having learned something from the previous year's class and lived a year longer in our world, hopefully with my eyes somewhat open. Also our technology has changed radically during the six years of the class. In 1992, the first year of "Me and Media", we started with enough computers for students to use in groups of 3-4 and one computer connected to a 1200 baud modem. In 1995 we had 10 computers connected to a 64,000 baud line. Presently, every student can use a computer which is networked to a T1 (1,500,000 baud) line. At first we had two 8mm cameras. Later we bought a digital still camera. Then we added a hi-8 camera and two more digital still cameras. Now we have four more digital still cameras, and a digital video camera in addition to our older equipment. We are exploring video conferencing and putting up video and audio files on our homepages. These choices were not available to us a few years ago. Still, technology is not the basis for our thinking about media; in fact, quite the opposite - I consider it extremely important to raise the awareness of students about the value of "personal media" and "unplugged media". 8

But the most important thing is the total design of this class, which is more a mood than a curriculum, more a context than a sequence. The most important thing that I as a teacher could provide my students is not knowledge itself, but a place where they can create their own knowledge. This environment must be one where the focus is not on a specific point of knowledge such as a predefined idea or answer, but rather on the process of building meaning and ideas. Also, the environment should be one which encourages certain attitudes on the parts of the learners. One is to be curious. Another is not to be discouraged and not to avoid confusion. Confusion is necessary in order to move from a safe idea that we think we understand, to a newer and deeper understanding of something. If we don't feel confused, it means we are never having new thoughts.

To this end, I have tried to create a space where students could listen to a wide range of ideas, be exposed to many kinds of media, to challenge and change their ideas about media which, at the beginning of our class, is usually quite restricted; for example, limited to thinking about media as only technical or "mass media".

Let me tell you some of the activities our students have done together in our Me and Media Class over these past seven years: 1) Taking a "blindfold walk" - Making pairs and taking a walk with one person's eyes covered and the other leading him/her through a path, up a hill and around a temple. Eating something, listening carefully to sounds, smelling and touching various things without being able to see them.. Then we wrote and talked about this experience. 2) Watching various films with themes relating to media: sometimes only in our class; sometimes in different classes together for example, in Holland, Germany and Japan. We always tried to relate these films to our own media experience.9 3) Publishing a class newspaper to share our ideas about media gave us an opportunity to see how different ideas and perspectives were valued, and that there was not a "right answer" in this discussion where making our own meanings was valued. 4) Creating a film about our school to be shown on KBS (Kyoto Broadcasting System). 5) Creating our own advertisements and sharing them with each other. 6) Discussion about the book "The Age of Missing Information", which contrasts media coming from cable tv and media coming from a weekend camping trip.10 7) Taking a rather simple message and preparing to present it to each other through different media - only visually, only by voice, in person, on film - in order to examine different experiences in delivering a message and receiving it. 8) Developing our own homepages to both expand and exchange our thoughts about various forms of media. (See http://www.intnl.doshisha.ac.jp/projects/me-dia/). 9) Watching a film of a student dance performance at our school shot from different perspectives and then discussing issues of points of view and perspective and control in media. Those who participated in the dance and those who were observers drew the event from memory. The topic of "memory as media" was introduced. 10) Thinking together about presentation of self as media. Discussing fashion, issues of "beauty" and "sexiness" and how media succeeds in defining what is attractive to us. 11) Visiting an old people's home and discussing various media issues with the resid-ents. We were also able to think about interviewing as an important media form. By coming into mindful contact with a wide variety of media and finding ways to present our own ideas about these experiences, awareness grew among us.

Let me share some of my students' thinking as they redefined and created media over these past seven years: - My new idea is that every object, not only physical, can become media. For example, clouds show weather and trees show us seasons. We are surrounded by media all day. This is a new idea which I've never noticed.

- A plant is media because they try to transmit many kinds of information; for example, seasons, smells, color, sort... But only we don't notice. We can also tell something about the atmosphere of a house or family by the plants around that place. Or the personality of the person who chooses them.

- Watching the movie "Quest for Fire" made me realize that since the birth of human, media has influenced our lives. The movie "They Live" showed us how scary media can be. I never thought of media taking us over or the dangers it creates, but watching these movies changed my ideas.

In a journal entry called, "What is Truth?" one student wrote: - There is a question 'how much of surrounding is truth and how much is not?' To this question, each of us has to answer separately because we each have to be responsible for what we receive as truth. We have to look closely at the information and make decisions on what's true and not.

After taking our Blindfolded walk, two students wrote:

- At first I thought media was just technology. But after we took that blindfolded walk, I found at that we can use our smell, touch, and senses to get information. I noticed that our body is part of media.

- I consider myself as media, too. My feelings always change and tells me what I need and what I want to do. Sometimes I can't understand myself. For example, why I like him so... why I hate her, and so on.

One boy, who was a rather unenergetic student in most classes, wrote very stimulating comments in his journal: - Though we think that we use telephones, I think that we are used by them. What do you think?" I wrote: "Yes, I think so too. I always jump up when I hear it. I used to take the phone off the hook when I was eating, but now I never do." 11

- He also drew this journal about "Face as Media", which was his own choice of topics. While these observations are not particularly "deep" academically, I think they had a powerful impact on the students understanding of "media" and themselves as "media."

About "Quest for Fire", a movie about prehistoric human life, two students wrote: - What is media for ape men? They didn't have language and writing. How did they get information? But information for them is the way to live in harsh nature. The information which they could get were sounds (a cry) smell and views. In other words, their physical organs perform the part of media. - How did ancient people get any media? Was it told them by nature? There was no mirror long long ago. How did they see their faces? What did they do without understanding it.

Other students wrote about new thoughts they had as they developed new concepts. - Friends as Media: A year has passed since I got into this school I learned many things from my friends. I know the things which I learned from my friends will keep in my mind more than any other things - for example, reading, watching and hearing from teachers.

- TV shows strongly influence people because many people watch them. If people who appear on tv make a fool of other people, some viewers may become persons who think nothing of hurting other people. This is a big problem. I want people who appear on tv to realize that they greatly influence people and look at their job again.

Students spent a summer looking at advertisements in magazines, newspapers and on tv. They then wrote journals reflecting on these experiences and brought in videos or copies of these commercials to be shared with others in class. Looking at such advertisements with new eyes, they were able to see the hidden messages, such as "If you come to this juku, you can reach the dream of your future." or "if you buy clothes at this store, you can be prettier than you are now." or "if you use this credit card, you can buy! buy! buy!" The student made a comment about the ads encouraging us to have a particular kind of mentality.

The social experiences both inside and outside of our classroom had a powerful effect on the students, in ways that just sitting in a classroom and reading from a ministry approved textbook could not have. Many students said something similar to this one: - I have changed my ideas about media through reading the journals of my classmates and also through the experience of our blindfold walk. One student in her drawing to try to represent her thoughts about media noticed that gossip was a powerful form of media. This was surprising to all of us, who never considered ourselves as "doing media" when we whispered something in a friend's ear.

All of these ideas could have been told to the students by a teacher, but I think that would have little impact on anything but their short-term memory. However, they discovered these and many more new ways of seeing media through their own experiences. I believe that this has much more long term value for their development as thinking, caring members of a future human society. I hope that my class can continue to help them think about themselves and their world more deeply.

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being led to think about the Iraq situation in a particular way through the metaphors provided by American media and politicians. 3 Dealing with metaphors poses a particularly interesting situation in a translated paper! Getting a similar feeling in different cultures- if indeed it exists - as you move from one language to another is a great challenge for the writer and translator to work together. For this paper, these quotes will be in both languages. 4 For further discussion on ways of looking at education through the language we use, see the work of Paulo Freire, particularly Pedagogy of the Oppressed, Continuum Press, NY. 1970, pp. 57-59. See also, Freire, Education for Critical Consciousness, Continuum Press, NY, 1973, p.81. 5 I first heard this expression from Seymour Papert, who attributed it to a young learner in Boston. 6 I'm quite worried about any course created by a ministry or board if it is in the form of a detailed curriculum, rather than a list of questions and ideas to be explored in a variety of ways by teachers and learners. Forcing a detailed curriculum on a teacher shows the same lack of respect for the teacher's intelligence and experience, that a teacher shows to the students by imposing his/her ideas on them. 7 An article and pictures have been published about our class in the first year of its development. Please see Journal of Learning and Evaluation, "Imi no Keisei o Hakaru Ego no Gakushu" (Creating Meaning Through English Learning), Saga, Hiroo. Issue #12, Winter, 1992, pp.68-77 8 I began using the expression "personal media" a number of years ago, in order to contrast with impersonal or mass media. I also wanted students to be aware of their own minds, spirits, dreams, families, and friends as media. I first heard the expression "unplugged media" used by Nobuyuki Ueda, Professor at Konan Women's College, Kobe. We have working on ideas related to this concept together during the past ten years. 9 For a list of such films, please write to the author at: hillelw@intnl.doshisha.ac.jp 10 McKibben, Bill Age of Missing Information, Random House, NY, 1992. Published in Japan as Joho so Shitsu no Jidai, published by Kawade Shobo Shinsha, 1994. 11 As much as my time allowed, I tried to engage in a conversation with my students, through their journals, our class newspaper, email and our class discussion - responding to their ideas, encouraging their thinking and trying to share my own experiences with them. Thus, the "teacher" becomes part of the conversation.