Coding Manual for "The Distant Gardener: What Conversations in the Telegarden Reveal about Human-Telerobotic Interaction"

Peter H. Kahn, Jr., Batya Friedman, and Irene S. Alexander

University of Washington

Abstract

The Telegarden is a small plot of earth encircling an industrial robotic arm. A web-based interface allows users to activate the robotic arm, view the garden through a camera mounted on the robotic arm, change the view, plant a seed, water it, and (if one is a successful gardener) water the resulting plant on an on-going basis. Many thousands of remote users have interacted with the Telegarden in such ways, and communicated to one another through an associated Telegarden chatroom. The Telegarden was developed under the co-direction of Ken Goldberg and Joseph Santarromana, and it represents an emerging form of human-computer interaction – that of telepresence. In a recent study, we investigated the user experience of nature as mediated by this telerobotic installation by analyzing the conversations in 3 months of associated Telegarden chat (16,504 posts). This technical report provides the full coding manual we used to code the chat data. Our goal is to present this manual such that – as part of an on-going iterative scientific process – it can be used and modified by others interested in investigating human-telerobotic interaction.

Introduction

Technological augmentations of the natural world are increasingly being inserted into human-nature interactions, or have the potential to be inserted. Think, for example, of "nature" programs on television. They offer a visually mediated experience, usually of recorded and condensed material of distant locations (e.g., of animal life on the savannahs of East Africa), wherein the flow of information is unidirectional, from producer to audience. However, as the pervasiveness and sophistication of such technological augmentations increase, important questions need to be answered. Can such technologies engage humans in meaningful ways? Is it the case that through such augmentations we can achieve similar psychological effects to their non-augmented natural counterparts? If so, then technology will provide a powerful and pervasive means to foster human well-being. Or is it the case that in some ways, perhaps many ways, such technologically mediated interaction with the natural world falls short?

Toward approaching these questions, we focused on the user experience of nature as mediated by a telerobotic installation, the Telegarden. This installation was developed at the University of Southern California in 1995 under the co-direction of Ken Goldberg and Joseph Santarromana. In 1996 the Telegarden was moved to the Ars Electronica Center in Linz, Austria, where it remained online until August of 2004 (Goldberg, 2000; Telegarden web site). The garden itself is a small plot encircling an industrial robotic arm. A web-based interface allows users to activate the robotic arm, view the garden through a camera mounted on the robotic arm, change the view, plant a seed, water it, and (if one is a successful gardener) water the resulting plant on an on-going basis. Many thousands of remote users have interacted with the Telegarden in such ways.

Potentially, users' interactions with the Telegarden embody some of the human experience of gardening itself. For example, Schultz (see Telegarden website) in *Garden Design Magazine* writes "though drained of sensory cues, planting that distant seed still stirs anticipation, protectiveness, and nurturing. The unmistakable vibration of the garden pulses and pulls, even through a modem." Yet it remains an open empirical question whether such writing conveys more writer's exuberance than fact in terms of the user experience of the Telegarden.

In addition to creating a Telerobotic installation that connected people to nature, the designers of the Telegarden sought to foster community (not unlike a community garden) by making users aware of each other, and aware of the impacts of their actions on the garden and other users. Toward this end, the site provided information about who is currently visiting the site, what they are doing, and what actions users have taken in the garden recently. The site also had a corresponding chat room, where users could engage – as in many chats – about topics

relevant to the installation, and any other topic of choice. The resulting online conversations were what we analyzed in this study.

Four overarching questions structured our investigation. First, to what extent did the Telegarden actually engage users in nature-oriented experiences? Second, were such experiences grounded by the physicality of the Telegarden itself, or largely focused on nature beyond the Telegarden, in, for example, the physical location of each user? Third, how did users experience the technological aspects of the installation, particularly the robotic arm that was the mechanism for acting in the garden? Fourth, did users' experience of the Telegarden change, and perhaps deepen, with increased participation?

Data was collected from an archive of postings to the Telegarden chat room, located on the Telegarden website. A 3-month (13-week) period, comprised of 22,952 posts, was selected for coding. These 3 months represent a period of robust use and exploration of the Telegarden site, soon after the installation was relocated to Austria. From this group of 22,952 posts, we then excluded all posts that were written in a non-English language or that were exact repeat posts (which was common due to the slow response of the server). The resulting data source for analysis comprised 16,504 posts.

To develop a coding system for the Telegarden chat data we drew on methods from developmental psychology for coding qualitative interview data (Damon, 1977; Kahn, 1999) that have recently been extended to online discourse (Friedman, Kahn, & Hagman, 2003). The coding system was first generated from postings in the archive outside the 3 month period selected for coding. Once finalized, the coding manual was used to code the 3-month data set. If a single post included several instances of a single category, that category was coded as "used" only once. It was also possible for several codes to apply to a single post, to account for the expression of a range of topics and attitudes within one statement.

To assess reliability of the coding system, an independent scorer trained in the use of the coding manual recoded 15% of the total postings (3,452 postings) across the 3 month period. Intercoder reliability was assessed through testing Cohen's kappa at the .05 significance level. All tests were statistically significant. For the lowest level of the coding hierarchy, $k = .70$, and for the highest level of the coding hierarchy, $k = .82$.

Social interaction is one of at least three main ontological categories of interaction essential to human living. The other two are artifactual and natural. The field of Human-Robotic Interaction has largely focused on social and artifactual interactions. For example, "social robots" (Breazeal, 2002; Fong, Nourbakhsh, & Dautenhahn,

2003) are being used in a variety of social settings, as peer tutors (Kanda, Hirano, Eaton, & Ishiguro, 2004), to help engage autistic children (Dautenhahn, 2003), and as companions for the elderly (Beck, Edwards, Kahn, & Friedman, 2004). Other types of robots have emphasized the human interaction with our own human-made artifacts, as in industrial robots on an assembly line (Asfahl, 1992). But humans also have strong desires, indeed needs, rooted in thousands of years of evolution, for contact with rich and varied natural forms and natural environments (Wilson, 1984). Thus the present study investigated the emerging possibilities in human-robotic interaction of using telerobotics to help foster healthy relationships with the larger natural world.

This technical report provides the entire coding manual used to code the conversations in the Telegarden chat room. Our goal is to present this manual such that – as part of an on-going iterative scientific process – it can be used and modified by others interested in investigating human-telerobotic interaction.

General Notes

1. The unit of coding is the entry. Each entry begins with a heading identifying the date and time and speaker such as: IQ(FORUM)PhilGuns (Sun,Oct 11 02:14:53).

2. Multiple Responses: It is not uncommon for a single entry to code in more than one category. Remember that should an entry provide the same category response (at the lowest level of category in the coding manual) more than once, then code that category only once for each entry.

3. The Chit-Chat/Other category and the 3 Uncodeable categories are Minimal Categories, meaning that entries coded as those categories will not double-code anywhere else in the manual. Therefore, entries will only qualify for minimal code categories if they contain nothing but the specific content for that code, and will not be coded in that category if they contain that content along with other content. For example, an entry that is entirely in German will code as Foreign Language Post. However, an entry that is partially in German and partially in English will NOT code as a Foreign Language Post, but will be coded under the appropriate category(ies) for the English content.

1   Human Relationship with Nature in the Context of the Telegarden

1.1   Experience of Telegarden as Garden

1.1.1 Geography of garden

1.1.1.1 Where is Telegarden -- Questions and statements pertaining to the garden's physical location at the AEC in Austria. [NOTE: a reference to geographic location in this context will NOT double code as Geographic Location]

Person A: $So this garden is in Austria?

Person B: $I AM COMPLETELY LOST AND NEED SOMEONE TO TALK TO ABOUT THIS WHOLE GARDEN THING THATS GOING ON.I MEAN,JUST WHER IS THE GARDEN AT ?

Person C: $for sure, the TG is reall...when you visit Austria, my homecountry and go to Linz, you can see them live at the AEC Center.... [Double code with Is the Garden Real, Visiting the AEC]

1.1.1.2   Size of Telegarden – Questions and statements pertaining to the physical size of the Telegarden garden or the overall number of plants.

Person A: $I read there are over 6000 plants in there. It must be a huge robot garden. How could there be that many?   [Double Code as Other   mention of Robot]

Person B: $The garden has more plants than ever before-don't you think? [Double Code as History]

1.1.1.3   Mention of specific locations in the garden, or specific constituents of the garden - Discussion of particular locations and elements within the Telegarden garden.

Person A: $Look at all the pretty flowers at I5..   No, we're not on the freeway..

Person B: "what is this plant at sector p8"

Person C: $Hi, everyone in the garden!! I FINALLY go to plant my first seed yesterday!! And, today, when I go to MY seed, there is something in the way. Can you figure out what it can be?? It is as F4. [Double Code as Caring for Plants or Seeds Planted, Mention of having plants]

1.1.1.4 Other questions/ discussions about the garden -- other questions or comments about specific physical features of the garden or the history or design of the garden

Person A: "DO we all have the same gardens, or are there many separate ones? How many if so?"

Person B $Why is it that I don't see any flowers blooming right now in the garden? How long ago was this bed started?

Person C: $any plans for another one of these in the future? I don't have a garden – but this is pretty close. [Double Code as Telegardening is Equal to Real Gardening]

Person D: $This one's been going since '95. I don't know any expansion plans.

1.1.2 Watering

1.1.2.1 Watering as individual task -- Individuals mention their watering as a chore or task, something to be done by themselves with no elaboration of intent or purpose.

Person A: "Watering Done!"

Person B: "My watering is done…"

Person C: $Hi "[Person]"!, just trying to get my plants watered...[Double Code as Mention of Having Plants]

Person D: $Phew!!! Think I have them all watered ;^)

Person E: $I can't stay-just came in to water my flower and see who is here. [Person] [Double Code as Telegarden Community- chatroom; Mention of Having Plants]

1.1.2.2 Watering as communal task -- Telegardeners trying to coordinate their watering with others, or requesting information about the watering activities of others

Person A: $I am at a telecomputing workshop. Has anyone watered plants today? [Double Code as Technology Beyond the Telegarden]

Person B: $...[Person]..you busy watering? [1998]

Person C: $So U cannot water either? [Double Code as Internal Tools]

1.1.2.3 Watering as enjoyable for its own sake – Watering the garden is seen as fun or enjoyable for reasons other than plant care

Person A: $Nice watering...one day I was here alone and considered watering a large smile face,but figured people would think I was an idiot:) [1998] [Double Code as Positive Valence, Watering as Communal Task]

Person B: $Rorschach is an ink-blot psych test-just joking, I like to water designs into the garden-tired of the usual joke-posting in member logs [Double Code as Internal Tools; Negative Valence-the Chat; Positive Valence-Watering Enjoyable for its Own Sake]

1.1.2.4 Watering other people's plants – Discussion of watering plants that do not belong to the person watering (This is a specific mention of plants that are seen as belonging to others, as opposed to Watering as a Communal Task in which the garden is a single, shared entity)

Person A: $[Person]-hello!Do people get upset if others water their plants? [Double Code as Rules and Norms]

Person B: $I'm using it right now.. $ $I don't get mad when people water my plants.. They need it to be watered.. [Double Code as Watering as Beneficial to Plants]

Person C: $Hi [Person 1]! $Hey [Person 2], where is your seed planted? I want to go water it! [Double Code as Mention of having plants]

Person D: $[Person] go to sector I1 and water. (That is the 12 o"clock position) $Try see if it works. [1998] [Double Code with Specific Locations in the Garden]

Person E: $ [Person]-it looks like you water you plants on a regular basis-do some people get upset if others water their plants? [Double Code as Watering as Communal Task; Mention of Having Plants]

1.1.2.5 Watering as beneficial to plants, garden -- References to watering as important for plant care, watering because plants need water, garden looks dry

Person A: $Is anyone watering the garden? It is looking pretty brown from where I sit. [Double Code as Watering as Communal Task]

Person B: $Hello...just checking to see if need some watering in here...*S* [1999]

Person C: $The plants looked like they needed more water today. Our $2nd Grade Class Group 1 watered them. We hope that the $plants are doing better now that they have been watered enough. $Sincerely, Mrs. [Person]'s Class Group 1 [Double Code as Watering Other People's Plants]

1.1.2.6 Watering is destructive to plants, garden -- Concerns about overwatering, flooding, killing or harming plants with too much water

Person A: "stop watering [Person]!!!!!!!!!!!!! the plant is going to drown!"

Person B: $yea you can kill your plant.

Person C: $could be, but when you water you doesn`t water in that much that you can kill them...only some trops ever turn...

Person D: $[Person]: but too much watering can do so too...

Person B: $By too much water I mean.

Person E: $[Person], easy on the water your flooding my seed out. Spread it around. [Double Code as Mention of Having Plants]

1.1.3   Planting

1.1.3.1 Plans for planting

1.1.3.1.1 Intention to plant; Questions – general expression of interest in planting a seed; questions about how to plant

Person A: $Hey [Person]... $Hold on a sec, let me plant $one real quick

Person B: $HOW DO PLANT I?who do want help me?

Person C: $I can not plant. Why?

1.1.3.1.2 Type of seed to plant -- Questions about what plant is being planted, discussion of the variety of plants in the garden or specific types of plants that can be planted (i.e. loopflowers), statements of desire or intention to plant a specific kind of plant [Note – intention to plant a specific type of plant will not double code with a more general Intention to Plant]

Person A: $I have been trying to figure out what a loopflower is, often we $have many of the same plants, but different names!

Person B: $yeap...we only can plant loopflowers...:)

Person C: $but i don`t know how a loopflower looks like...think have never seen one...

Person D: $Maybe this time we will be planting cannabis-for medicinal purposes only-of coarse:)

Person E: $[Person], I figured out what a loop flower is, I think it is a petunia?

Person F: $Thats good news, maybe i will get a different flower this time, I will $just have to wait and see...[Positive Valence, 3.4.10]

Person G: $nope...as i know they...loopflowers again...for use....*G*

Person H: $how do you change the seeds you want

Person J: $[Person]...you can only plant what is provided... [1998]

Person L: $Anyone know what kind of plants we're planting?

Person M: $Is it still Loop Flower?

Person N: $Too bad we can't plant flowers or food – like strawberries

1.1.3.1.3 Getting enough hits – Discussion of getting hits specifically to enable planting, or of being allowed or able to plant; Discussion of the mandatory one-week waiting period specifically as a means to plant

Person A: $Well I am coming up on 500 hits, so I will be able to plant again, :-)

Person B: $[Person]- Have you been allowed to plant?

Person C: $I hope we get to plant at the end of the week but we'll $have to wait and see... [1999]

Person D: $[Person] you can build your hits by typing a message and clicking post, $that way you will soon be able to plant a seed [Double Code as General Discussion of Hits Requirements]

Person E: $I made 100!!!!! OK….count down to plant-off!!! (T-)6 days, 10 hours, 10 min. See Ya!!!!

Person F: $I just registered under a different name to try and fool [Person 1] and $[Person 2], but it did'nt work they caught on right away! (forgot they $list e-mail address) Now I am just building up to 500 so I can plant $another seed when they clear out the garden... [Double Code with Planting After the Garden is Cleared Out and Subversion]

Person G: $If you've been a member of the garden for a week your plant button $should look like *plant* just pick a spot and press it them follow $the instructions… [Double Code with Internal Tools, Discussion of Hits Requirements; Finding a clear spot to plant]

1.1.3.1.4 Finding a clear spot to plant – Discussion of how to find a good spot to plant or planning to plant at a particular spot

Person A: $I would like to plant, but the camera is too dark, I cannot find a good place. [1999] [Double Code with Technology Weakens Ability to Care; Camera/View]

Person B: $Not doing too shabby,just learning how this all works...trying to find room for a plant :) $

Person C: $[Person]-is there an advantage planting all your seeds in one area?

Person D: $[Person], no I don't think there is an advantage...I just planted all my seeds there to find them in an easier way [1998] [Double Code as Mention of plants; Caring for plants or seeds planted]

Person E: $Hi [Person], there seems to be a pretty good bare spot @12.96 and 3.68. [1998] [Double Code with Specific Location in Garden]

Person F: $Gosh, [Person 1] and [Person 2], THANKS so much for helping me understand. When I plant next time, I will make sure I am in the right spot. [Double Code with Telegarden Community— Interpersonal Support]

1.1.3.1.5 Planting after the garden is cleared out – Discussion of how AEC garden clearing will affect planting options or decisions

Person A: $When you get your 100 hits, wait for awhile to plant as they are going $to clear out the garden and then you can plant, and be able to watch $your plant grow easier. This Is what I am going to do [Double Code as General Discussion of Planting Rules and Caring for Plants after Planting, AEC Staff Intervention]

Person B: $The garden is scheduled to be cleared out in early $May to start anew, I Have a seed to plant, but will wait for the new garden. $ $read weather report, that is their fun way of letting you know they will be clearing $out the garfen and planting anew for spring :-) {Double Code as Questions and Discussion about Clearing the Garden; AEC Staff Intervention]

Person C: $I have a seed to plant, is it better to wait until after the Hurricane

Person D: $You are right, I will wait with my planting. [1999]

Person E: $I guess I will save my first seed for May. Will my credit still hold for the new garden? [Double Code as Questions and Discussion about Clearing the Garden]

Person F: $EVERY SPRING THEY CLEAR THE GARDEN, NOW IS THE TIME TO PLANT [Double Code with AEC Staff Intervention]

1.1.3.2 Tending plants after planting. (Note: "Caring for Plants" in this context does not refer to emotional care (caring about plants), but only acts of maintenance which do not necessarily entail moral or emotional regard. For example, people take care of their cars, their carpets, their teeth without necessarily believing that those things are inherently worthy of moral consideration or feeling any particular tenderness or emotional relationship.)

1.1.3.2.1 Neutral mention of having plants/ Success – a simple mention of having plants, or of having planted seeds, or their locations, with no further elaboration, or asking someone if they have plants; could also include mention of success in planting or growing plants

Person A: "I see you have seeds planted at G13 and H12" [Double Code as Specific Locations in the Garden]

Person B: "yes I planted them a few weeks ago"

Person C: Do you have a seed planted?

Person D: $yes, i have two here...

Person E: $[Person], yes I planted in D11 and E14 [Double Code as Specific Location in the Garden]

Person F: $[Person]-do you have plants growing?

Person G: $[Person]...have you been able to plant a seed here in the garden? I planted $two already and it shows I could plant again...but will wait...*S* [Double Code with Getting Enough Hits to Plant]

Person H: $[Person]-do you have plants in the garden?

Person I: $[Person] - my plants....uhhhmmm my seeds are planted in sector P10   [1998] [Double Code with Specific Location in the Garden]

Person J: $have you planted some new seeds?

Person K: $Yes I have plants at D4 L4 and R5... [Double Code with Specific Location in the Garden]

Person L: $ahhhh I see. And have you all had success ?

Person M: $[Person], take a look at my TG PAGES…there you will see a GIF-animation of my plant back in 1997…[Double Code as Technology Beyond the Telegarden; History/ Origin Stories]

Person N: $Success many times.

Person O: $i finally planted a seed!!

1.1.3.2.2 Caring for plants or seeds planted -- mention of activities related to care of plants or seeds that one has planted, could include simply looking or checking the spot to observe growth, finding the plant once a seed is planted, as well as questions relating to the care and monitoring of plants

Person A: $Hello [Person], I was just checking the seed I planted before I hit the scak soon. $How goes your day? $

Person B: $Take care All I think plant is doing as well as it can right now. :-) [1998]

Person C: $id forgotten about it. can you really monitor the seeds you’ve sown? How do you remember where they are? Do you just have to remember ? $

Person D: $is no one here????guess I will tend garden for a bit and leave….[Double Code as Chatroom]

1.1.3.2.3 Difficulty or lack of success after planting – failure or inability to tend plants after planting, uncertainty about whether a seed has sprouted, whether plants are alive or not; also certainty that one’s plants have died or never sprouted [NOTE: This category will not double code

with Technology Weakens Ability to Form Relation to Plants or Care for Them—that category trumps this one]

Person A: $I have re -entered the garden. I Planted a seed over a year and a half ago but found it difficult to maintain contact [Double Code as Telegarden Community – History]

Person B: $They don't always sprout and sometimes the plantings get so claose together it's hard to tell who's who...but yes it will be fun anyway... [Double Code as Overcrowding in the garden; Nature—Psychological Effect; Positive Valence]

Person C: $I don't know whether my plant is gone or not- it had been a week since I planted it, and I don't think it was up yet.

Person D: $[Person]- the only flower I had here was gone after summer holidays [Double Code as Travel/Vacation]

Person E: $My seeds never came up at all

Person F: "I don't know why I even water…I think just one plant of mine Might be alive…maybe not :-)"

Person G: $Yes I have plants at D4 L4 and R5... [*Code as Neutral Mention of Having Plants and Specific Locations in the Garden]

Person H: $I guess you can't really call them plants yet because they haven't sprouted...

Person J: $I think mine hasn't come up yet...How long does sprouting take?

Person K: $Purrty flower [an image posted by another member]…bout ONLY one that will make it to the blooming stage in here..$ [Double Code as Technology Beyond the Telegarden-Positive Valence]

1.1.4 Overcrowding of plants in garden/Clearing the Garden

1.1.4.1 Overcrowding in the garden, garden is full – mention that the garden is full or seems overcrowded.

Person A: "the TG looks like a jungle"

Person B: "no room anyway...can 10263 plants grow in such a small garden" [Double Code as Size of Telegarden]

Person C: $hallo. [Person]. I m very disappointet now. cause i did more than 100 hits ann now the Message is $the telegarden is full. [1998] [Double Code as Getting Enough Hits to Plant; Negative Valence, Nature—Psychological Effect, Garden is Full]

Person D: $Does a garden is full message appear?

1.1.4.2 Questions and discussion about clearing garden – Discussion of what will happen either to the garden or to members' ability to plant after the garden is

cleared, how the process of clearing the garden works either physically or logistically, general discussion of clearing the garden, responses to this information or to the garden being cleared (Note: discussion of the weather in the Telegarden relating to clearing the garden does not double code as Weather or as Other Nature. Instead discussion of hurricanes, attempts to portray clearing the garden as a natural disaster will code as Clearing the Garden Replicates Natural Processes, and not here)

Person A: $What's with the weather report?

Person B: $[Person]...replanting and reset of the TG isn`t far away....

Person C: $[Person], when they replant the garden, will the seeds I just planted $remain? [Double Code as AEC staff intervention; mention of having plants]

Person D: $hi [Person 1]! $ $[Person 2]...no, think not...they make a earthchange aswell i think, but also the plantcount will set back to zero aswell, so we can start from the begin... [Double Code as AEC staff intervention; General Discussion of Hits Requirements]

Person E: $The AEC people have "cleared" the garden this morning. But not really, some plants survived. [Double Code as AEC staff intervention; Other experience of Garden]

Person F: $ $Tomorrow they will start it over???? Am I wasting my time watering? [Double Code as Watering as Individual Task; AEC staff intervention]

Person G: $Yes, I saw that. $Empty garden again i suppose.

Person H: $when they do that do we get back to plant three seeds or just what we have $left?? i have one left of my three..... [Double Code as Planting Limits; AEC staff intervention]

Person I: $They cleared it once before and i think i just got my old placings back. I don't remember if i got new seeds. [Double Code as Planting Limits; AEC staff intervention]

Person J: $Has the soil been replaced also? [1998]

Person K: $They cleared out the old garden, but should have given you new seeds to plant to replace any plants you had in the garden. [Double Code as AEC staff intervention; planting limits]

Person L: $They did.How often do they clear out the garden? [Double Code as AEC Staff Intervention]

Person M: $I don't know, I joined just before they cleared it out earlier this month. Maybe [Person] knows?? [Double Code as Telegarden Community-History; AEC staff intervention]

Person N: $Hi [Person]...just a quick dropp-by here... $seeing if any difference after the "weather" $announcement...looking forward to the changes... [Positive Valence, Discussion about Clearing the Garden]

Person O: $Can't wait to see the upcoming changes in the garden... $glad to see they are going to restart the planting soon. [Double Code as AEC staff intervention and Positive Valence, Discussion about Clearing the Garden]

Person P: $[Person], that is sad, they throw out all the seeds we just planted, $oh well, We will just have to start over... *G* [Double Code as AEC Staff Intervention; Nature-Psychological Effect, Negative Valence, Discussion of Clearing the Garden]

1.1.4.3 Clearing the garden replicates natural processes – a relation of Telegarden clearing to processes or cycles of nature

Person A: $Have you seen the post in the garden view about them moving or cleaning out $the garden because of hurricane???? [Double Code as Camera/View; AEC Staff Intervention]

Person B: $I planted right after the "storm", but these are gone as well :([1999] [Double Code as Mention of Having Plants]

Person C: $[Person]...after a year it`s time for a restart, new space is needed...*G* [*Code as Overcrowding in the Garden; Discussion about Clearing the Garden]

Person D: $[Person], this is true, it is spring a time for new beginnings! [*Code as Seasons]

Person E: $yeap...as it is in any othere normal garden... [1999] [Double Code as Telegardening is equal to Real Gardening]

Person F: $A hurricane-nature is so cruel [Double Code as Negative Valence, Other Nature]

Person G: $A tidal wave would be easier-they could just turn on a water hose and blast everything out of the garden [Double Code as AEC staff intervention]

Person H: $Here's what the weather report is.. $ $This spring Austrian weather seems very instable. Some circumstances indicate a $possibility of an upcoming hurricane. Because of our experiance with hurricane $"ALAN" on May 5th last year we try to save the plants in time. $ $Stay tuned for the latest news ! $ $Thanks $ The Telegarden Team [Double Code as History]

Person L: $Do you go to the weather update at Member View? Today it says: $Dear Gardeners, $Hurricane Ada tore through the Telegarden at approximately 9am Friday April 8, destroying most of the plants. All telegardeners with plants will be given new $plant permissions immediately. $ $Stay tuned for the latest news ! $ $Thanks $ The Telegarden Team [Double Code as Internal Tools]

Person M: $There's a "hurricane" through here every six months or so.

Person N: $..[Person]..yes..when there is a clearance... [1999]

Person O: $Nice to meet you, [Person]! $ $I saw there was a "hurricane" yesterday in the garden.

Person P: $hurricane ?

Person Q: $I guess a hurricane is when they clear things out of the garden. [Double Code as AEC staff intervention]

1.1.5 Social Relation to Telegarden Plants

1.1.5.1 Ascription of Mental States to Telegarden Plants – including personification of plants or attributing emotional states to plants; talking to plants (Note: "Hello garden" does not count as talking to plants)

Person A: $Well now that I'm alone, I may as well talk to the plants. $Hi there! My, my, what lovely petals you have ! And   your colors $are awesome ! I'm listening ! Ah ha, yes yes I agree, your $view about population density is interesting. Ley me try to $talk with, er,er, whoever will listen. OK? I'll be back ! [Positive Valence]

Person B: $Hi telegarden! Hi plants – You and me alone again!

1.1.5.2 Emotional Regard for Telegarden Plants – referring to plants with tenderness, expressing concern emotionally for their well-being.

Person A: $My poor 2 wittle seeds..

Person B: Just checkin' in on my "lil ones" :)$ [Double Code as Care for Plants or Seeds Planted]

1.1.6 Moral Regard for Nature Constituents of Telegarden

1.1.6.3 Affirmation – A specific statement that plants inherently deserve care or regard or that plants have certain rights; statements that certain behavior toward plants is moral or immoral

Person A: $I have just learned a harsh newcomers leason. I have not yet earned the right nurture care for and love a seedling. As I understand I must chat and learn from you all in order to earn my diploma. This is probably all for the better. I will be better prepared to handle its fruit bearing age. [1998] [Double Code with Hits Requirements Encourage Responsibility; Emotional Regard for Telegarden Plants; New Users; Educational Effects of Social Life]

Person B: $Gee that's depressing….. $Nourish something and watch it grow….$water, feed, love…..$then they come and yank them out!$ROFLMAO [Double Code as Nature-Psychological Effect, Negative Valence, Discussion of clearing the garden; AEC staff intervention; Watering as Individual Task; Caring for Plants After Planting]

1.1.6.4 Negation – A specific statement that plants do not inherently deserve care or regard or that plants do not have rights; statements that harmful or beneficial behavior towards plants is not a moral issue

1.1.7 General/Other

1.1.7.1 Desire for other gardening activities – the speaker would like to be able to do other activities tending the garden

Person A: $Do you think a weed option would be interesting?

Person B: $Yes I do....how about clippers to make flower bunches, or a microtrowel for transplanting....we could move [Person]'s plants around and really drive her nuts:)   [1998]

Person C: $Night all I have watered plant and untill they let us weed I guess that is all I can do now. [1998] [Double Code with Watering as Individual Task; AEC Staff Intervention]

1.1.7.2 Other Gardening concerns (mushrooms, bugs, etc.) – Discussion of gardening issues in the Telegarden beyond planting and watering, such as weeds and insects

Person A: $do they ever get bugs or pest in the garden!

Person B: $Maybe an empty beer can someone threw in the garden?

Person C: $To feed the slugs, I assume?

Person D: "somrtimes the whole place is wet…I hope no mushrooms grow"

Person E: $Hi [Person], yes, but there was an infestation of mushrooms a few weeks ago 8-([1998]

Person F: "maybe we should add some tiny little statues"

Person G: $who plants the yellow toadstools???? grow everything wholesale

Person H: $[Person], don't blame me for the toadstools!

1.1.7.3 Visiting the Telegarden or AEC – Mention of visits or wanting to visit the Telegarden or AEC building in Austria; seeing the Telegarden in person.

Person A: $Yes, [Person], I have visited the real telegarden for several times

Person B: $Hello [Person]! I have been twice in aec in Linz and you? [Double Code with Geographic Location]

1.1.7.4 Other Experiences of Garden – Discussion of the Telegarden as garden that does not fall into any categories above.

Person A: $It is a long time since I have seen the garden, it is still nice [Positive Valence]

Person B: $Changes would be nice. It seems like there are a lot of bare spots.

1.2 Analogical reasoning

1.2.1   Telegardening is better than real gardening - Statements that gardening in the Telegarden provides more benefits or a better experience, or is better for the speaker than gardening in real gardens

Person A: $Slow, quiet day here in Vancouver.   Partly overcast and chilly.   Not a good day for gardening out of doors [*Code as Geographic Location; Weather-Negative Valence; Gardening in General]

Person B: $so the Garden here is the ideal place:-)

1.2.2   Telegardening is equal to real gardening - Statements that gardening in the Telegarden replicates the experience of gardening in real gardens, that the two provide similar benefits or experiences, or assumptions of such similarities; assertion that membership in the Telegarden constitutes one as a gardener.

Person A: "Gardening on the web or in your yard is nice and gives you a great feeling $of accomplishment!" [Double Code as Nature-Psychological Effect, Positive Valence, Gardening in General]

Person B: $Each new day is something new, like my own garden. Spring bulbs everywhere, new each day. [Double Code with Seasons]

Person C: $I an a gardener of the earth, the telegarden extends that for me!   [1998]

1.2.3   Telegardening is worse than real gardening - Statements that gardening in the Telegarden does not provide the same benefits or experience as gardening in a real garden

Person A: $[Person], there are crocuses blooming in my VT garden. Pretty sad when the only gardening I can do right now is on my computer. Aching to get my hands in the dirt [Double Code as Gardening in General; Geographic Location; Nature—Psychological Effect; Negative Valence, Telegardening is Worse; Technology Beyond the Telegarden]

1.2.4   Telegardening is not comprable to real gardening - Statements that gardening in the Telegarden is not the same thing as gardening in a real garden, that it is not possible to even make the comparison; asserting that one is not a gardener despite membership and participation in the Telegarden.

Person A: $You really have that many hits [Person]. You must be really involved with gardening. Do you really garden? [*Code as Virtual Gardening is Similar to Real Gardening, Focus on Hits for Their Own Sake]

Person B: $[Person]...no, i don`t really garding...:

Person C: $[Person], are you a gardener of the earth or a virtual gardener only?

Person D: $Sorry I have no idea what kind of plant this is :o) I'm not really a gardener :o) $ [Double Code as Gardening in General]

1.3   Effects of Telegarden Garden on Users

1.31   Physical - Mention of physical effects of gardening or spending time in the Telegarden, i.e. relaxation, improved health

Person A: $...[Person]...finishing your day with a bit of gardening?????? [*Code as Other Experiences of Garden]

Person B: $yes, a little watering...   [*Code as Watering as Individual Task]

Person C: $...[Person]..nothing like it to sooth the nerves and settle you into the $sleep mode..*G*...   [Nature-Physical Effect, Positive Valence, Watering as Individual Task]

1.3.2   **Psychological** -Mention of psychological effects of gardening or spending time in the Telegarden, including excitement, frustration, enthusiasm, "having fun", or stress. Statements may also describe the garden as having a particular character—being soothing or serene, for example.

Person A: $hi [Person]-there is a hugh pretty flower blooming next to where I planted my flower. I can hardly wait for mine to bloom!!!! [Double Code as Other Experience of Telegarden Garden; Nature-Psychological Effects, Positive Valence, Mention of Having Plants]

Person B: $..I think most of us that have been here for some time come for the $chat mostly and to keep up with our friends..It is a wonderful thrill $to plant that first seed though... [Double Code as Telegarden Community—Friendship; Chatroom; History; Nature-Psychological Effect, Positive Valence, Mention of Having Plants]

Person C: $Great, I have N1 G10 and O2.   It will be fun to watch them grow [1999] [Double Code with Specific Locations in the Garden; Nature-Psychological Effect, Positive Valence, Caring for Plants After Planting]

Person D: $I never plan on staying long, but the time passes quickly when touring the garden.. [Nature-Psychological Effect, Other Experiences of the Garden]

Person E: $[Person]...yeap, time pass faster here then elleswhere....*G* [Nature-Psychological Effect, Other Experiences of the Garden]

Person F: $[Person] $I have worked on the garden for about a month or so. $I do it just for fun, watering the garden while reading other sites on the net. [1999] [Double Code with Origin Stories; Watering as Individual Task; Technology Beyond; Nature-Psychological Effect, Positive Valence, Caring for Plants]

Person G: $Hi [Person], do you like our garden in Austria [*Code as Where is Telegarden]

Person H: $Yes, I am addicted to it, just finished watering my plants, [Double Code as Watering as Individual Task, Mention of Having Plants; Nature-Psychological Effect; Other Experience of the Garden]

Person I: "Sorry to disturb the serenity of the garden-the plants know no political disturbances" [Nature-Psychological Effect; Other Experience of the Garden]

Person J: $O.K. I am stressing :>) what is that big white bucket looking things..I would assume it is a tech working in the area. Plant parenthood is a serious thing. I was just about to conceive, but if there are predators in the area...well..I will have to move on..;>) [1998] [Double Code with Other Experience of the Garden; Nature-Psychological Effect, Negative Valence, Finding a Clear Spot to Plant]

Person K: $Gee that's depressing..... $Nourish something and watch it grow.... $water, feed, love...... $then they come and yank them out! $ROFLMAO [Double code with Moral Regard; Watering as Individual Task; Caring for Plants After Planting; Negative Valence]

Person L: $ACCCKK! $*pout* think i should go plant in the yard instead.....lol $wait a week and then to find out that eventually *yank* $lol. oh well. I'll give it a go. To bad

they can't ship the $plant to you after......lol [Double Code with Desire for Other Gardening Activities; negative valence]

1.3.3   Educational - Mention of educational effects of gardening or spending time in the Telegarden; knowledge gained, role of the Telegarden in children's or adults' learning

Person A: $Mrs. [Person], It is wonderful that you have children using the site.. what a wonderful learning experience. $ $Good Morning Mrs. [Person]'s 2nd grade class! :-) [Nature-Educational Effect, Positive Valence]

Person B: $"I am the computer and 6th-8th grade science teacher at a school with one hundred fifty students. The second grade is coming to the Tele Garden as a class. Their teacher has now challenged the class to build their own robot for their class garden. I think this is a great site and a wonderful idea! [1998]
[Double Code with Other Discussion of Robot; Technology Beyond the Garden; Positive Valence-no Content code]

Person C: $Hi I am a 7th grade teacher in Richmond, Va. I was wondering if this would be a good site for my students to learn about plant growth. [Double Code as Geographic Location; Gardening in General]

1.3.4   Other, Unelaborated - Other expression of a particular effect caused by or experienced as a result of spending time gardening in the Telegarden.

1.4 Nature beyond the Telegarden

1.4.1   Discussions of gardening in general, gardening in "real gardens" - Any discussion of gardens or gardening that is not specifically the Telegarden garden, any discussion of plants, flowers or trees in a yard

Person A: $What flowers have started blooming? I have tulips, daffodils & my minature rose has tiny buds on it.

Person B: $The Dogwoods,Azaleas and the Redbuds.My Lillies have started to come $up.

Person C: "Yesterday I was actually out and working in my 'other' garden, the one in my backyard."   [Double Code as Other Nature]
"I have to go now and water my real plants!"

Person D: $I'm feeling sad that it's now September and soon my REAL garden will be finished. [1998] [Double Code as Nature-Psychological Effect, Negative Valence, Seasons]

Person E: $..now that I am not working...I spend time with my real gardening.. [Double Code with Work]

Person F: $well, nice chatting with you all. i guess i will go check my mail and make sure my REAL garden is still hanging on! :o) [1999] [Double Code with The Chatroom]

Person G: $..Bye [Person]... $I must go for a while and do some rel life gardening... [1999]

Person H: "[Person]-how is your lavender doing? I remember you talking about cutting it back last year…"

Person I: $[Person]...hubby wants to plant more fruit trees....a cherry is one of them... $we also have a lemon tree that produced alot of lemons...the cold killed $about 1/2 of them, but we did alright...*S* [1999] [Double Code with Family; Weather]

Person J: $[Person]-I think I have asked you before,but do you garden outside?

Person K: $Bye [Person 1]! $[Person 2], no I only own one outside plant, my rose :)

Person L: $What kind of rose is it-do you know?

Person M: $The garden of "my" house is done by my lessors

Person N: $It a "rosé" rose :)

Person O: $If I would worry for other plants than my rose... $perhaps to good climate between me and my lessor was disturbed... $so I let them do :)

Person P: $Gardening can require some diplomacy-I have an elderly relative that visits and likes to direct my vegetable garden-I just smile and let him have fun:) [1999] [Double Code with Family]

Person Q: $need you [Person 1] $[Person 2] has a plant she wants identified $I said you could ask your brother if you don't know. $so here it is PULEEEEEEEEEEESE $Or anyone else that knows?????? $ [URL]   [Double Code as Family; Technology Beyond the Telegarden]

1.4.2   **Weather** - Discussion of weather in any location [Note—discussions of large, well-publicized storms or natural disasters that involve extended consideration of the human or social response are coded under Global/Political Events]

Person A: $..change in our weather today...Southerly change blowing up.. $Might get some rain..but definately cooler...

Person B: $C...here it`s a bit diffrent...it goes better here... $hope the cold doesn`t came to early to your part...

Person C: $[Person]...wow...didn`t knowen that...:)) $only it`s cloudy here right now...:(

Person D: $We are over cast but warm in Detroit [Double Code with Geographic Location]

Person E: $[Person] what weather in Ohio ? [Double Code with Geographic Location]

Person F: $Dance-warming up,some showers today flowers daffodils are blooming,no leaves on trees yet-how about your part of the world? [Double Code with Gardening in General]

Person G: $hi [Person], $ $how is the weather in italy?? $in linz everything starts growing again $ $ $i [Double Code with Other Nature, Geographic Location]

Person H: $[Person]...wait until this sort of weathere was here...:)

Person I: $..yes...enjoying their weekend...Sunny and calm here...

Person J: $we have had some rain and even snow else wehre..think it snowed in portland early this morning..Mt Hood has 25 feet of snow..a 25 record!!...but most of day has been sunny but windy and very cool.. [Double Code with Geographic Location, Other Nature]

Person K: $We've got sun and the middle 70's Farenheit, here in Skamokawa. $ [Double Code with Geographic Location]

Person L: $well there is sun here now, but it's sweatshirt weather.

Person M: $What kind of weather do you have today, [Person]?

Person N: $..weather here is cool but sun is starting to shine... [1996]

Person O: $High temp and Humidity.

Person P: $[Person]...and here it's cold and rainy...

Person Q: $hello [Person]....getting cold here and leaves are changeing fast [1998] [Double Code with Seasons]

1.4.3   **Seasons** - Discussion of seasons in the abstract or of specific seasonal changes being observed

Person A: $[Person]...doing fine...anothere nice spring day ends here in Austria...[Double Code with Geographic Location; Positive Valence,Seasons]

Person B: $[Person]...nice...seemse spring is also recieve your part....

Person C: $Yes spring is here..

Person D: $[Person]...nothing much...spring here...anothere nice day...and this usall stuff south here...[Double Code as Positive Valence, Weather]

Person E: $Yes,finally wonderful spring [Positive Valence, Seasons]

Person F: $[Person]: the willow is blooming, but there is no flowers yet $and it is warm .. and feeling of Spring.. :) [Double Code with Gardening in General, Weather]

Person G: $You can tell it's spring here because all of a sudden there is a lot of "road kill"-dead animals laying along the roads-they all come out at night and get hit by cars [Double Code with Other Nature]

Person H: $S[Person]...a bad sign of good seasion and every year...:([Negative Valence, 3.4.10; Positive Valence, Seasons]

Person I: $...[Person]..Easter Sat for us...seems as if it is aa lovely $Autumn day over most of the country... $Do you have Good Friday as a holiday in Canada????/ [Double Code with Geographic Location and Travel/Vacation; Positive Valence, Seasons]

Person J: $Funny ... [Person], here, it is SPRING as never...

Person K: $same here...looks the winter is not longer far away...

Person L: $yes...i'm not happy that summer is over [Negative Valence, Seasons]

Person M: $LOL...you mean this kind of a warmer spring...

Person N: $haha...fall is a beautiful time but it leads to a long winter. i perfur summer. maybe i should move south [Positive Valence, Seasons]

Person O: $I envy you coming into summertime, leaves are falling off the trees here $and the weather gets down to freezing some nights already [Double Code with Weather]

1.4.4   Environmental Issues - Discussion of global environmental concerns, environmental health or disaster, pollution, ntural disaster. NOTE: This category will trump the categories of "Global/Political Events" and "Weather"

Person A: "i'm sure weather is changing fast on this planet :(r u into greenpeace or any similar stufF?"

Person B: $well the weather seems to be in extremes these days...extreme heat in summer $and extreme cold temps, record snow falls and flooding etc....

Person C: $well i have experienced temps I have never experienced before..into mid 40C's $for a period and lately into the mid to late 30's...when it drops down to 20'c $i think it is cold!!..LOL

Person D: $hi [Person 1]! $ $[Person 2], looks you get the full programm past El Nino now....

Person E: $yes good old El Nino...seems everything is blamed on El Nino these days..

Person F: $looks so, but maybe we should blame our self...;-) [1998]

Person G: $#1 I was wondering-what kind of contamination at Peggy's Cove? [Double Code with Geographical Location]

Person H: $What do you mean "contamination"??? Peggys Cove is a place in Nova Scotia that is not contaminated??? [Double Code with Geographical Location]

Person I: $I saw on the news that the plane dumped fuel prior to crashing-is the area contaminated with jet fuel?

Person J: $..bye [Person 1].. $[Person 2]..you are wondering if the debris from the plane will contaminate the area..

Person K: $...[Person]..wouldn't think the jet fuel would contaminate like oil $would.. $Hello Blu..

Person L: $finally you spit it out. No it is not contaminated. It was a long way from shore and the ocean is very very very huge!! It would dilute quickly. that would be no prob. There are all kinds of bits of luggage and body parts washing up on shore and alot of nutty people are there trying to find souvenires. How dumb. The govt is telling them it is illegal etc. [Double Code with Global/Political Events, Other Nature]

Person M: $Hi [Person 1]! I survived Georges but man did he leave a mess behind here! I have no more car due to water damages It was waist high under my home. $ A big floating dock that "was" in my back yard is now in the front yard!! $ Any thing that wasn't tied down has floated away.. [Person 2] $Yes [Person 3] Fla. & Miss. got hit

worse but most areas in La. that were by water (me) did indeed get lotta wind & water in homes.. [Double Code as Geographic Location]

1.4.5   Other - Other mention of nature, natural elements or occurances (not including gardens or gardening), also animals or pets

Person A: $[Person 1] & [Person 2] ....Do you like nature in spring....? [Double Code with Seasons]

Person B: $yes its very pretty [Positive Valence, Other Nature]

Person C: $[Person]-look out your window-it is the "Blue Moon" tonight-it is the second full moon of the month and will not occur again until 2008!

Person D: $...[Person]...how many hummingbirds at the feeder?

Person E: $lately only one at a time and not all day like before...they mut $be sitting on eggs or something...bought a new feeder and moved $the old one to the back patio...*S* I don't think they like the $new one...maybe not sweet enough..*L* almost empty so will be refilling.

Person F: $I think I have to make the water more sweeter...that should bring $them back...*L* I hope the bees stay away...they sure come around $in the fall time.... [Double Code as Seasons]

Person G: $[Person]...have you spoken to [nickname]? she has a new $puppy...nickname [Pet Name]....eats through the chain link fence...and $other things...*L*

Person H: $her new dog sounds like a hand full...did she tell you about the Koi pond $hose busting and pond emptied...good thing fish did hot die...

Person I: $good excuse to keep the fires going [Person]..

Person J: $How far are you from Niagra-Falls?

2. Human Relationship with Technology in the Context of the Telegarden

2.1   Experience of Telegarden as Technology - Comments dealing largely with the Telegarden as a technological system or as a set of tools to access the garden or the social experience.

2.1.1   Robot

2.1.1.1 Artifactual/ Technological Description/ Processes

2.1.1.1.1 Affirmation – The robot is made up of technological elements, is viewed as an artifact or a piece of technology, is treated as a tool or an object, a piece of machinery that can malfunction, something that can be used

Person A: $On the right pic, you see what the camera mounted on the robot's arm is seeing. [Double Code as Camera/View]

Person B: $The Robotic arm is suposto have a light, right?

Person C: $The robot needs a tune-up I believe, it was down $yesterday

Person D: "how can I use the robot when it's dark?" [Double Code as Camera/View]

2.1.1.1.2 Negation – The robot is not made up of technological elements, is not to be viewed as an artifact or a piece of technology, is not to be treated as a tool or an object

2.1.1.2 Biological/ Animistic Description/ Processes

2.1.1.2.1 Affirmation – The robot is made up of biological elements, is alive or behaves as if alive, or should be treated as if it were alive or a biological being

Person A: $[Person]...the robot getting old old as it looks.... [*Code as Other Discussion of Robot]

Person B: $thanks harald...maybe it needs some ben-gay

Person C: $is it just my imagination or is the robot having a bad day??

Person D: $no, the robot have a bad day since serval day`s...*G*

Person E: $so what is the robots demands?

Person F: $we'll do all we can to find Ms. [Person]'Robot`a but be sure its understood... no seed pods are to leave the garden!

Person G: $I guess the robot's arm is dancing now :))

Person H: $robot has to have some time off…

2.1.1.2.2 Negation -- The robot is not made up of biological elements, is not alive, does not behave as if it is alive or a biological being, or should not be treated as if it were alive or a biological being

Person A: $The robo arms been down-there's been talk about applying ben gay [*Code as Other Discussion of Robot]

Person B: $WD-40 might be more appropriate...

2.1.1.3 Agency

2.1.1.3.1 Affirmation – The robot engages in intentional behavior

Person A: $i cant wait till the next robot reads this stuff... hope the population explosion here does'nt give bad osilations!!! [Double Code as Overcrowding in the Garden]

Person B: $perhaps the robot is getting its revenge...LOL

Person C: $I should be about ready to plant my second flower-I hope the robot takes better care of it. [Double Code as Intention to Plant]

Person D: $Somehow TG robot has got upset...confused...

Person E: $or robot off partying for the night..LOL

2.1.1.3.2   Negation – The robot does not engage in intentional behavior

2.1.1.4   Social Standing

2.1.1.4.1   Affirmation – the robot is viewed as a peer, communicates with others, users enjoy the company of the robot

2.1.1.4.2   Negation – the robot is not viewed as a peer, does not communicate with users, users do not enjoy the company of the robot

2.1.1.5   Moral Standing

2.1.1.5.1   Affirmation – the robot engenders moral regard, deserves moral care, is morally responsible or blameworthy, has rights, deserves respect

Person A: $[Person]. I don't trust the robot any longer!!! Somehow its weird!!! [1999]

Person B: $Who can save the robot? - Please help!

Person C: $What is wrong with the robot? I thought he was a caretaker!!Looks to me like he has his wires crossed!!! [1999]

Person D: $You've got to care for it, feed it, give it electricity, and let it go offline at least once a year.

2.1.1.5.2   Negation -- the robot does not engender moral regard, does not deserve moral care, is not morally responsible or blameworthy, does not have rights, does not deserve respect

2.1.1.6   Other/ Unelaborated – Descriptions or mention of the robot or "arm" that do not fit in the above categories, including descriptions of the robot as an icon on screen or the "Robot image" (which double codes with Camera/View)

Person A: $should have brought you to chat… $Otherwise click in the middle of the Robot [Double Code with Internal Tools]

Person B: $I only have Robotic image on [Double Code as Camera/View]

2.1.2   Interface Widgets and Gizmos

2.1.2.1   Camera/ View – Discussion of either the camera mounted on the robot or the Eyesight camera, as well as discussion of what appears on the screen as viewed through those cameras, including discussion of lighting

Person A: $I had hoped to see some of the activity in the eyesight,but I got out of bed too late [1998]

Person B: $[Person]...goto eyesight, there you can see the garden fully...then you get biger how look it...:)

Person C: $..when I look and click on it I get a night light view of some $of the plants...what do you see???

Person D: $About five clicks up and to the left and you get some light...4 total..one looks like a reflection on water...

Person E: $I get the same illuminated plants....maybe it's daytime where you are [Person] :) $However I do know the river is the Danube. [Double Code as Geographic Location and Nature Beyond]

Person D: $Actually it is more like 8 click up and to theleft...I saw the bot as well..dont know why I am scanning around in the dark..too much time on my hands I gues.. [Double Code as Other mention of Robot]

Person E: $...I have found a high window I think and looks like sky and clouds!! [Double Code as Other Nature]

Person F: $...[Person]..Now I have a grand view of the river and the buildings on the $farther bank..and reflections in the water.. $Can you see them???? [Double Code as Other Nature]

Person G: $..hello [Person 1]...can you see it too [Person 2]????

Person H: $...I can see what looks like a river cruiser now...

Person I: $Yes! Good hunting! that looks like quite a vessel over there as well... $Hello [Person].

Person J: $..I am clicking to the R at the river level..it is interesting.. $and lighter all the time..Good to be able to share with someone else..   [Double Code with Other Experience of the Telegarden as Community]

Person K: $Hello [Person 1]- $[Person 2]- I have been looking at the people in the AEC through the eyesight

Person L: $My problem is that I get different camera images of a sector or the same image of two different sectors. How can I avoid this?

Person M: $after getting to the sector you want the second image will be the correct one...the garden doesn't display images correctly...has been a problem since they brought the system back from the last crash. [Double Code with AEC Staff Intervention]

Person N: $[Person], it just seems to me that there are no plants under $the dot but lots of small one all around??? [Double Code as Internal Tools]

Person O: $Oh, that problem. $The camera does not always take you where you think you should be.

Person P: $[Person]...think that problem is fixed, since a day or two...

Person Q: $[Person]..found your plants...better this green marks...:)

Person R: $HELLO [Person] ! I WANT TO KNOW JUST HOW THE ARM AND GARDEN WORK?WHEN IM LOOKING AT THE CIRCLE,IS THAT THE GARDEN IM LOOKING AT OR AM I SUPPOSED TO LOOK AT IT A DIFFERENT   [Double Code as Artifactual Affirmation of Robot]

2.1.2.2 The blue imac installed near the garden – discussion of the computer that allows in-person visitors to join the chat.

Person A: $Hello! This garden is great! Is there anyone at the blue iMac that you can view with $the camera? I see people there sometimes and they are typing... $Hellllooooo... :0) [Person] [Double Code as Camera/View; Positive Valence, no Content]

Person B: $Anybody there, at the TeleGarden? Can we $see people if they stand at the Blue IMac? [Double Code as Camera/View]

2.1.2.3 Internal tools to assist using the site

2.1.2.3.1 General -- Discussion of tools built into the Telegarden site, including screen   layout and toold accessible through the site layout, locations within the site (including the chatroom described as a location), member logs, name and other ID information recorded in the system, plant or water overlay or discussion of what can be seen on the screen in these overlays (i.e. green dots for plants or blue squares for water), "options" in the garden site.

Person A: $[Person]: have you looked at options ? If no, so I think you needs to do it $ There is the "composite" - switch it on..

Person B: $hi [Person]-it is quiet in the garden-no one else was here. How are you? What is a member tracker? [Double Code with Telegarden as Community - Chatroom]

Person C: $Hello [Person]! $Sorry, I was in another chat room as well. $A member tracker shows you where the other members of the garden are.... [Double code as Technology Beyond the Telegarden; Recognition of Multiple Users]

Person D: $[Person], how do you do find the shot of someone working at $the center? I have searched around but find very little [Double Code as AEC staff Intervention]

Person E: $[Person], go in the Info section.

Person F: $Click the "help" button and read everything on that page, especially the part about planting [Double Code as Intention to Plant]

Person G: $[Person].. check in the options section of the garden to see if you have the camera image box checked.

Person H: $yes I have, why do you ask? $The GIF box is marked as well $would it be better as a jpeg?

Person I: $I have GIF marked. $Don't know what is wrong.

Person J: $I can´t press the butom "plant"

Person K: $...[Person]...are you in the garden or the chat room????

Person L: $i was in the garden, with the chat at the bottom, but i've moved into the chat room now...

Person M: $good idea [Person]..haven't been in the garden..just in here..

Person N: $...I have missed that vision..have only been in the chat…

Person O: $This is a nice interface… Anyone can use it [Positive Valence-Internal Tools]

2.1.2.3.2 Representation of the system/interface as a biological or social being – representations of the internal system of the Telegarden having agency, making decisions, requiring rest or emotional support, etc.

Person A: $This thing isn't allowing me to post =(

Person B: $Well, it won't let me change my name back OR change any of my info.. I don't see any seeds planted but I know people have been planting them. [Double Code as Internal Tools; Success/ Having Plants]

Person C: $It won't let me plant anyway.. [Double Code as Technology Weakens Ability to Care for or Form Relationship to Plants]

2.1.2.4 External Tools – discussion of technological tools external to the Telegarden site used to access or navigate the site, such as web browsers or computers; log-in; bookmark

Person A: $I'm not sure I use internet explorer and it reloads the images each time...I forget with netscape... [Double Code with Camera/View]

Person B: $In netscape the picture of the plants is fine with the reload button. [Double Code with Image/View]

Person C: $I know. But with a slow computer the arm could move again before you got your pic. [Double Code with Artifactual Affirmation of Robot; Camera/View]

Person D: $I dunno.. Maybe it's having problems. I don't have that option on since I have a whimpy computer. :) It's suppose to move to the area you are watering or visiting. [Double Code with Internal Tools; Camera/View; Caring for Plants or Seeds Planted; Watering as Individual Task]

Person E: $I will try to log in from scratch – may be it will help!

Person F: $Did you bookmark after you set options? [Double Code as Internal Tools]

2.1.3 Interaction Design

2.1.3.1 Hits Requirements

> **2.1.3.1.1 General Discussion** – Discussion of the hits requirements or ways to satisfy them, without any evaluation of these requirements or their effects
>
>> Person A: $Well I thought the only limitation was the 100 hits...apparently $they want me to be on for at least a week in addition to that...oh well... [Double Code as AEC staff Intervention]
>>
>> Person B: $You can also make hits by watering plants. [Double Code as Watering as Individual Task]
>>
>> Person C: $Yeah [Person]-keep talking and you'll be at 500:)
>
> **2.1.3.1.2 Focus on Hits for Their Own Sake** – Trying to get hits simply for the sake of having more hits, discussion of the number of hits a person has without reference to plans to plant, discussion of "hithunters"; Mention of having a specific amount of hits without mentioning an intention to plant.
>
>> Person A: $I got 2 hits more than you !!! $

2.1.3.2 Multiple Users – Discussion of the ability for multiple people to access and use the site and the robot at once

> Person A: $how can more than 1 user use the robot? [Double Code as Artifactual Affirmation of Robot]
>
> Person B: $It's not taped on a video, no. the robot reacts on every click with your mouse. if there are many members in the garden at the same time the robot makes a list so that everybody gets the chance to do something for the garden, do you understand? [Double Code as Is the Garden Real; Artifactual Affirmation of Robot; External Tools]
>
> Person C: $When you move from one sector to another, you still get the old sectors image...until you do something at the new sector ....and as long nobody else is using the robot. Very often one gets the other peoples pictures!!! [Double Code as Internal Tools, Artifactual Affirmation of Robot, Camera/View]

2.1.3.3 Planting limits – Discussion of the limitations on the number of seeds an individual can plant in the garden

> Person A: $[Person] do they give us our seeds back< I just planted in the past two $weeks [Double Code as neutral mention of having plants; AEC Staff Intervention]
>
> Person B: $yes, when they replant the TG, they change the earth aswell...and mostly we got 3 plant counts back...:) [Double Code as Questions and Discussion about Clearing the Garden; AEC Staff Intervention]
>
> Person C: $I think those who are able to plant now are members who didn't have a chance to plant before the plant function was disabled... [Double Code as Internal Tools]

2.1.4   AEC Staff Intervention - Discussion of the AEC staff and their role; requests for staff assistance with the technology or to overcome or repair deficiencies or malfunctions in the technology; reference to the actions or role of AEC staff in clearing the garden; reference to "they" or "them"—the AEC staff in a role of controlling or regulating options in the garden

Person A: $Yes, [Person], you were right, it works at this tour - thanks, but, does anyone know, when it will be repared?

Person B: $Yes I too would like to know if any repairs are in the future :)

Person C: $I hope they'll recognize it and fix the bug.

Person D: $Maybe we need to figure out a good time frame we can all meet here... $perhaps we can figure out a way to get the AEC to acknowledge us... $it would be nice if they kept us informed on the agenda of the garden. [Double Code as Corporate Decision Making]

2.1.5   Subversion
Any discussion of or attempt to engage with the Telegarden system in a manner other than expected, especially covertly, with the intention of undermining the system, being sneaky or tricky, or asserting individual desires that cannot be achieved within the structure

Person A: $can i tell the robot to destroy the garden, ha ha? [Double Code as Other Mention of Robot]

Person B: $[Person], I live really near to the AEC, I could go there and plant a real tree, just for the fun of it. What kind of tree do you want to see?

Person C: $Okay, I'll plant a Tannenbaum. I'll let you know when I start the attack! [1998] [Double Code both as Discussion of Plants to Plant]

Person D: $I just registered under a different name to try and fool [Person 1] and $[Person 2], but it did'nt work they caught on right away! (forgot they $list e-mail address) [Double Code as Internal Tools]

Person E: $arghghgh!!!! i can never plant again i guess. $ $bummercity... $ [*Code as Planting Limits, Psychological Effects-Technology; Negative Valence]
Person F: $Surre you can...just re-register(!) Some people around here have 3 AKAs... [1998] [Double Code as Internal Tools]

2.1.6   Telepistemology

> **2.1.6.1   Experience of Telepresence** -- instances in which people directly recognize and discuss the experience of operating the robot, managing the garden, or meeting people at a distance facilitated by technology.
>
> Person A: $Well, I'll check in later. Can't wait to get into all of this garden's features. I can honestly say I haven't ever controlled a garden in Austria with a robotic arm over the Internet before. [Double Code as Internal Tools, Geographic Location, Artefactual Affirmation of Robot, External Tools]

Person B: $well I must say this is one cool idea. you can make life happen from thousands of miles away. Also, think about it, if we ever find a planet that supports life as we know it, you and I could do this from millions or trillions of miles away!!!!!! [Double Code as Positive Valence, Other Nature Beyond the Telegarden]

Person C: $[Person]-you have to remember that the time zones that people are in-maybe they are sleeping now-it is global

2.1.6.2 **Is the garden real?** Is what is seen what is actually there? – Questions as to whether the garden is a real garden or actually exists, whether the experience is only virtual or pre-recorded.

Person A: $Must be very interesting-I thought at first that the garden couldn't be real, but now I don't care. It is an interesting concept and I stop by once a day. If nothing else it is neat to sit in my living room and talk with someone from across the world. Thank you.. [Doble Code as the Chatroom, Positive Valence; Experience of Telepresence]

Person B: $There's only 6,000 member in 3 years?...Hmmm That's NOT very many...But Im glad you can't over water. *S* $ $Som with ever click that robot responds huh?..*S* LIVE right? It's not taped on video right? [Double Code with Watering is Destructive to Plants; Artifactual Affirmation of Robot]

Person C: $I'm thinkong maybe they are using dummy pics [Double Code as AEC Staff Intervention; Camera/View]

2.1.6.3 **Technological Blur** – Confusion about the correlation between the interface and the actual garden; an inability to distinguish what appears on the screen and what exists in the garden; expectations of things that are physically/ naturally impossible, especially if they are possible in virtual or digitally created worlds, or if they appear to occur through the cameras.

Person A: $[Person]-what happened to our flowers-the garden looks empty and I can't find mine at all. I watered the spot anyway. Will they show up again? [1999] [Double Code as Other Experience of Garden; Individual Watering; Mention of Hacing Plants]

Person A: $Hey everybody!!Is there any way to get to the old garden? $What happened to the old garden?It's been awhile since $I've been to the tele-garden. [Double Code as History]

Person A: $Hey! I saw that. I "planted" a seed and right after I did it you put a flower on top of it. grrrrrr It was brown and empty before I did it. What is going on in here. You did it one minute after I planted:[
[Double Code as Mention of Having Plants; Negative Valence, Other Experience of the Garden]

Person B: $And now they disappear and leave me alone:[lol $I am at I5 $I planted 3 seeds there and it was definately brown!!! Within one minute a red flower was crowding me out. $grrrrrrrrrrr [1999] [Double Code with Specific Locations in the Garden; Mention of Having Plants; Negative Valence, Other Experience of Garden]

Person C: just makes planting a seed more of a gamble $than usual because never know if the view you are seeing is what is $actually there...one of the

views i have seen many times from all over $the garden...LOL..think it follows me around for some reason... [Double Code with Camera/View and Technology weakens ability to care for plants]

Person D: $Why is it that "my" plant always looks different? It says that I should be looking at "my" plant....but the image of the plant in the view is always a different plant... [Double Code as Camera/View; Mention of Having a Plant]

Person E: $Because if I believe the image that shows up 50% of the time this morning....my plant is gone. Very strange. [Double Code as Mention of Having Plants; Camera/View]

Person F: $Ok, that's what I'm used to seeing. Even if it isn't really mine - at least it is familiar. (grin)

Person G: $Did you notice some strange behaviour with the positioning $of the robot? suddenly there seem to be a lot of plant in T12 $except when I water it. [Double Code as Artifactual Affirmation of Robot; Specific Location in Garden;Watering as Individual Task]

Person H: $And then again sometimes everything looks like expected. [Double Code as Camera/View]

Person I: $These pictures seem to come from randomly selected $places...all kinds of funny flowers and plants. [Double Code as Camera/View]

2.1.7   Other

2.1.7.1 **Potential Applications of Telegarden Technology** – Discussion of potential uses for systems and technology similar to the Telegarden, the possibilities of such technology.

Person A: $Hullo from Australia. $What a great idea just think of all the possibilities of this system, the mind boggles. $Maybe we could use it to nudge our politcal masters (or servants) into directions that we think are more important! [Double Code as Geographic Location; Global/Poitical Events]

.

Person B: $well I must say this is one cool idea. you can make life happen from thousands of miles away. Also, think about it, if we ever find a planet that supports life as we know it, you and I could do this from millions or trillions of miles away!!!!!! [Double Code as Other Nature Beyond the Telegarden]

2.1.7.2   **Other Experiences of Technology in the Telegarden** – A posting that relates to an experience of the Telegarden as technology but does not clearly indicate whether theexperience is the result of internal or external tools.

Person A: $Ooooooooops, sorry - technical difficulties..LOL $ $[Person] -deine Frage ist nicht wirklich angekommen :(

Person B: $...some postings take so long to load..or do for me...

Person C: $Why is the picture I see from the robotic arm of the plants dark. (like night) yet from the "eyesight" it looks like daytime? [*Code as Camera/View; Artefactual Affirmation of Robot]

Person D: $Hi [Person],I have no idea, things have been strange in the garden lately $but hang in there its fun [Double Code as Positive Valence with no related content code]

Person F: $...place has gone odd for me... $will only show a couple of messages..does not load properly...

Person G: $trying to open the garden but does not look as if it is going to…

Person H: $Got booted…Bye [Person]…

2.2. Analogical Reasoning

2.2.1 **Digital or robotic tools are better than traditional garden tools -** A statement that the technological gardening tools available in the Telegarden (or such tools in general, including robots and digital telepresence) are preferable or enable better gardening or better experiences than traditional garden tools such as rakes, hoes, shovels, etc.

2.2.2 **Digital or robotic tools are equal to traditional garden tools** - A statement that the technological gardening tools available in the Telegarden (or such tools in general, including robots and digital telepresence) are similar or provide similar gardening or other experiences to traditional garden tools such as rakes, hoes, shovels, etc.

2.2.3 **Digital or robotic tools are worse than traditional garden tools** - A statement that the technological gardening tools available in the Telegarden (or such tools in general, including robots and digital telepresence) are not preferable or diminish gardening or other experiences compared to traditional garden tools such as rakes, hoes, shovels, etc.

2.2.4 **Digital or robotic tools are not comparable to traditional garden tools** - A statement that the technological gardening tools available in the Telegarden (or such tools in general, including robots and digital telepresence) are dissimilar or cannot be compared to traditional garden tools such as rakes, hoes, shovels, etc.

2.3 Effects of Technology on Users

2.3.1 **Physical** -Mention of physical effects from the use of Technology in the Telegarden, including body sensations or health effects

2.3.2 **Psychological** - Mention of psychological effects from the use of technology in the Telegarden, including frustration, enthusiasm, anger, having fun, etc.

Person A: $arghghgh!!!! i can never plant again i guess. $ $bummercity... $ [Double Code as Planting Limits; Negative Valence]

Person B: $Doesn't that make you mad??!!!! I hate being booted out of here, especially when I'm talking to someone. [Double Code as The Chatroom; Negative Valence]

Person C: $I'm so disappointed...i got my 100 hits finally and it still won't let me plant, plus now it says I need 500 hits! Argh! [Double Code as Hits Requirements; Negative Valence]

2.3.3 **Educational** - Mention of educational effects of using the technology in the Telegarden, including gains in knowledge, increased or decreased ability to learn, etc.

2.3.4 **Other Effects**

2.3.4.1 Effects of Hits Requirements

2.3.4.1.1 Community – a statement that requiring a certain amount of hits affects the social community of the garden, for example the hits requirements do or do not bring people together to exchange conversation, friendship and knowledge

Person A: $ $[Person]: I'm a chat addict, so I've been around quite a few chat rooms! But I must say this is a great idea, gardening over the Internet. And I appreciate the 100 hits before planting - besides it gives me a chance to get to know you all first! [Double Code as Technology Beyond; Positive Valence, Experience of Telepresence; Positive Valence, Community Effects]

2.3.4.1.2 Responsibility – Requiring a certain amount of hits affects how people view their commitment to the garden; causing or discouraging people to take the garden and their role more seriously, be more committed, and take better care of their plants

Person A: $ $[Person]: admittidly i found it a bit annoying at first, but because of the vast amount of people on the internet that would plant something and forget about it, and take up space in the garden that others would use, i think the 100 hits idea is a good precaution. [Double Code as Hits Requirements Prevent Overcrowding; Positive Valence; Technology Beyond the Telegarden]

Person A: $..[Person]...will be a litle time before you can plant...have to be here for a week $and have 100 hits...nuisance isn't it... [*Code as General Discussion of Hits Requirements; Getting Enough Hits to Plant, Negative Valence]

Person B: $Yeah i just discovered that...i suppose it keep sonly the serious people in the game though $

Person C: $..yes it does...If everyone that came for a look planted it would be $a shambles...When you can plant the ..Plant button will show.. $....*PLANT*..... [Double Code as Internal Tools]

2.3.4.1.3 Overcrowding – Requiring a certain amount of hits affects (or specifically fails to affect) the overall number of plants in the garden

Person A: $[Person], oh that's a shame - i guess i'll just have to wait :) i guess it makes the occasion more special. LOL $they have a point though, otherwise the garden would be a mass of plants and no soil! [Double Code as AEC Intervention]

2.3.4.2   Technology or technological malfunction weakens ability to form relation to plants or care for them– A statement that malfunction of the robot or the site caused plants to die or made users unable to properly tend for their plants, or concern about that possibility

Person A: "here's a tip from the [Person]: ;-) $if you're allowed to plant a seed and you plant it, the seed doesn't be planted for 100 percent, cause the vaccuum

pump isn't working good for 2 years...at the beginning in 1996 it worked very fine...I had one plant then...but it dried out in case of the robot beeing offline for more than 3 weeks" [Double Code as Artifactual Affirmation of Robot; Mention of Having Plants; History; Intention to Plant]

Person B: $Doesn't sound good. I'd like to se my seedling grow.
{Person B is worried because the camera is not working correctly} [1998]

Person C: just makes planting a seed more of a gamble $than usual because never know if the view you are seeing is what is $actually there... {The camera is not displaying the area it says it is pointed at} [Double Code as Camera/View]

Person D: $I've still not planted my first seed - been here for 3 years and never got anything to grow - I've had thousands of hits but when the server blows up I have to re-register ! [Double Code as History; External Tools]

Person E: $Robot offline !!! Very bad. Who watering my plant? [Double Code as Other Mention of Robot; Negative Valence, Technology Weakens Ability to Care for Plants]

Person F: $Just stopped to make sure the place was still active - I gave up in trying to $grow a plant! [*Code as Difficulty or lack of success after planting]

Person G: $Every time I planted the garden crash and lost all my efforts $

Person H: $garden misbehaving again tonight…can't wander around it..sob sob sob.. [Double Code as Other Experience of Technology in the Garden, Negative Valence, Psychological Effect]

2.3.4.3 Technology strengthes ability to form relation to plants or care for them

2.3.4.3 General Other – Mention of other effects of using the technology in the Telegarden.

2.4 Technology Beyond the Telegarden - Discussion of computer applications, computer technology or technologically mediated activities not directly related to the Telegarden, including chatroom activities such as clearing the room, posting pictures, links, or songs (Note: a link posted with no other commentary will code as Uncodeable – Picture, Song or Other Posting); making the text bold or color or otherwise altering the appearance or environment of the chatroom; statements of general interest in technology or robotics; sending e-mail or ICQ messages.

Person A: $...is it OK with you if I clear the room?...

Person B: $o.k. you got me, what does, "clear the room" mean

Person C: $..I just put a doy in the post box and post and when waiting shows $in bottom bar post again up to 20X I usually do..

Person D: $you have to make multi postings..to clear the room

Person E: $I admit ,I don't know what ICQ is...

Person F: $Hi [Person]...I'm playing with the code for that page...when I use IE $it loads normal...with netscape I have to reload and one of the scripts don't run...which version of browser do you run? [1998]

Person G: $A-just got my computer back last night-my husband crashed it a few days ago,we had to have a friend fix-he got rid of wn98 and reinstalled wn95 [Double Code with Family, Friendship]

Person H: $Hallo [Person 1]! $ $[Person 2]...:(...semse you have also not much   luck.... $yeah, i know that...had also some crashes, but only hardware one...HDD and   mainbord...*G* $but why you doesn't use instead win NT, is much better then win95 or 98..

Person I: $So U didn't like W 98 [Person]? I'm waiting before I put it over my W 95 B. $ Heard too many bug stories upon others using it..

Person J: $..Hello [Person]..If you are there...ICQ messages for you!!!!!!

Person K: $...Hello [Person 1]... $See [Person 2] has got ICQ...

Person L: $hi [Person 1]! $ $[Person 2]...yes, but he have two accounts...:(

Person M: $...2 can help when you get put off and 1won't come on line...

Person N: $C...oh yes, there was such a bug for a coupel of time....

Person O: $...[Person]..have you checked your ICQ?????

Person P: $[Person]: I wanted to, but each time I try to connect via "normal" ICQ it starts creating a new user... $I'm fiddling around with the clones...hope it'll work.

Person Q: $I see Netscape browser has a new security hole in it $ Just read story at : $[URL] $ Check it out

Person R: $That ICQ thing... is quite crappy under Linux... [Negative Valence-Technology Beyond]

Person S: $[Person]...use for ü, ä and &ouml this signs ue, ae and oe then TG doesn`t support that signs in way...:)

Person T: $[Person]...no normal writen ü and so one here...only ue works here...:)

Person U: $know...with some special german signs the same...only standard ASCII code works or writen this sing in HTML code...

Person V: $ [Person], I asked you to authorize me for ICQ

Person W: $Hello [Person]! Trying to chat with you on ICQ!

Person X: $[Person], do you have ICQ?

Person Y: $You could join our chat..

Person Z: $No :($It`s impossible to install it to UNIX only with my wishing ..

Person A1: $What UNIX system are you using?

Person B1: $It works for me under Linux as a Java application

Person C1$I dont know.. $Netscape ? $Oh time to go.. $Sorry.. $Let us speak about it next time.. $Byeeeeeeeeeeeee

Person D1: $Oh linux.. Yes.. Byeeeeee

Person E1: $Probably, [Person 1].. They haven't gotten up over there yet. :) $ $[Person 2].. I'm gonna have to reboot.. Too slow to go look at anything. I'll try to get back into ICQ. $ $I'll see everyone later!! BYEEEEEEE.....

Person F1: $I'm trying hard to find a page from 'University Santa Fe Robot Bug'

Person G1: $they have a very new development in moving robots $ $so I'm very interested in it

Person H1: $but i have a question for   you........how did you post in bold type..!?

Person I1: $You use the "bold" html tag: <b<(thing bolded)<.b<

Person J1: $Oops make that: (thingbolded)

Person K1: $Like this.

Person L1: $(i see)

Person M1: $i for <i>italics</i>.

Person N1: $And you can even do bold <i>italics.

3. Social Life

3.1 Experience of Telegarden as Community

3.1.1   **Friendship and Interpersonal Support** - Mention of friends within the Telegarden chatroom; expressions that the Telegarden chatroom provides supportive social relationships; the garden or the chatroom is a friendly place

Person A: $[Person] does need a pat on the back once in a while :-)

Person B: $for always saying hello.

Person C: $..[Person 1]..he does that...he is always ready to help... $He once went all night without sleep to help [Person 2]..*S*... [Double Code as Telegarden History]

Person D: $A-Iwas looking for people that grew plants-but this is so much more interesting-people here are very friendly. [Double Code with Discussion of Gardening in General; Positive Valence-no content]

Person E: $[Person]...yes, this one of the best places on the Net, when you lucking for friendly ppl...:)) $but we growen aswell plants here more or less...;-)[Positive Valence-Friendship in the Telegarden; Mention of Having Plants]

Person F: $..I think most of us that have been here for some time come for the $chat mostly and to keep up with our friends [Double Code with History, Chatroom]

Person G: $[Person 1] says Hi to all TG, special greetings to her friends [Person 2], [Person 3], [Person 4] (whos birthday is on friday!!!!), [Person 5], [Person 6] and all the others.

Person H: $...fingers crossed for you [Person]…

3.1.2 Inclusion / Welcoming/ New Users
Expressions of welcome for new members, including a simple "Welcome to the Telegarden" or a more elaborated effort to reach out to new members or visitors; discussions of the exclusive or inclusive nature of the Telegarden and chat; scaring away or intimidating users; a sense that there is an established group; A person making specific reference to themselves or others as new to the site

Person A: $[Person]..do not be daunted by the place..we all had first times here..*S*...

Person B: $hi [Person]!...Welcome to the TG…

Person C: $welcome [Person]..hope you like the garden..you are doing extremely well to $figure out how to post messages etc on your first visit...usually takes $people a little while and a few visits to figure it out... [Double Code with Internal Tools, Interpersonal Support]

Person D: $no worries [Person]...for a first visit you are doing exceptionally well.. $think it took me a few visits before i worked out how to get to chat room [Double Code with Internal Tools, History, Interpersonal Support]

Person E$...[Person]..glad you have found us... [Positive Valence-Welcoming]

Person F: $I have a feeling you all know each other. Am I trying to break into an exclusive group here?

Person G: $No...Everybody is welcome at the garden

Person H: $Not at all - anyone welcome here - Hi to you

Person I: $hi [Person]! $you are a new member of the telegarden, aren't you?

Person J: $... so welcome in this special community! [Double Code as Other Experience of the Telegarden as Community]

Person K: $Hi [Person 1], [Person 2]…….you would have LOL earlier , was trying to say Hi in Italian to a new person, and I think I scared them away [Double Code as Geographic Location]

Person L: $didn't mean to scare whoever is was off!!

3.1.3 Corporate Decision Making/ Collective Action
Examples of members working together to improve the site or the garden

Person A: $Maybe we need to figure out a good time frame we can all meet here... $perhaps we can figure out a way to get the AEC to acknowledge us... $it would be nice if they kept us informed on the agenda of the garden. [Double Code with AEC Staff Intervention]

Person B: $talk about it first...I imagine the post might stimulate some thought... $I am usually in and out during different times of the day...

Person C: $I could be around about 2 pm or maybe later

Person D: $Sorry about the slow response I got a phone call... $perhaps we could organize a member association, $sort of a forum where we could plan some regular meetings and $perhaps have a collective voice...

Person E: $Nothing to ruin the autonomy of the garden just an $exchange place for information...

3.1.4   Rules and Norms - Discussion or elaboration of rules or norms that are held (or are claimed to be held) by Telegarden members

Person A: "of course there's only ONE garden. $ we all work together, that 's the point."

Person B: $But look, This site is not for politic chat!Right?

Person C: $[Person 1]...this is a open place for all things...aswell politics... $or did you see that diffrent [Person 2]?

Person D: $.this is a world forum..all things to be talked about by all people so $that we can all understand if possible..

Person E: $don't worry about that [Person]..that is something we have all done and still $do...it is only people who do that on purpose and repeatidly so that we $get a little annoyed with...   [1998]

Person F: $[Person], $Everyone one of us in TG does not tolorate hackers.   [1998]

Person G: $HIGH YOU FUCKING FAGET I FUCKIN'HATE YOU AND YOUR GARDEN SUCKS SHIT HAVE A NICE DAY BY [*Code as Flaming]

Person H: $[Person 1] your a bad boy, dont be writing stuff like that.from [Person 2] [1999]

Person I: $I check in everyday-sometimes more depending on how much time I have-a lot of regular people check in daily even if they are traveling [Double Code as Travel]

3.1.5   Origin Stories/ History -Discussion of past experiences in the Telegarden; discussion of how individuals first discovered the site; granting individuals a role or identity specific to the Telegarden and its community; remembering an individual from previous encounters

Person A: $I know you from the "old" days...caught a post from you about being an oldtimer...would you be the member formerly known as [Person]?

Person B: $Yes, I was [Person]...but that log on was lost a long time ago. $=) [1998]

Person C: $You still have a place in TG history 8^)

Person D: $[Person]...you are not alone with this hope, but as a TG-Oldtimer i know, that could take ages befor...*G* [1998]

Person E: $A-how did you find out about this site?

Person F: $As they opend the AEC, where the TG is placed there was a story about the TG and AEC itself at the TV and since this time, i hang round here more or less often...*G* [Double Code as Telegarden in the Public Eye]

Person G: $..[Person 1] is the [Person 2] of the Garden

Person H: $How did you found this place?

Person I: $nevermind, I went to your homepage. Seems as though you have spent a lot of $time in the garden [Double Code as Technology Beyond the Telegarden]

Person J: $..have been here for a few years now…

Person K: $hello [Person]…long time no see :) do you remember me?

3.1.6   Flaming - Virulent, outspoken expressions of anger or insults

Person A: $HIGH YOU FUCKING FAGET I FUCKIN'HATE YOU AND YOUR GARDEN SUCKS SHIT HAVE A NICE DAY BY

3.1.7   The Chatroom and the Chat
Discussion of the quality or condition of the chatroom or of the "garden" or site specifically as an arena for social interaction (full, empty, busy, boring); discussion of the quality or abundance of the chat in the chatroom; mention of chatting or talking with others in the Telegarden chatroom; mention of spending time in the chatroom; also mention of other chatrooms or sites established by Telegarden members specifically for social interaction among Telegarden members, such as telegarden.org or Telegarden Cookbook; also, simply a statement that the speaker came to see who else was there, asking if anyone is there or if a specific person is there

Person A: $wow a lot of people round here in the garden (at this time?!)

Person B: $Looks like I missed everybody.. :(

Person C: $guess the garden is empyt...stilll...bye empty garden...

Person D: $well, nice chatting with you all. i guess i will go check my mail and make sure my REAL garden is still hanging on! :o) [1999] [Double Code with Mention of Gardening in General]

Person E: $LOL, Cath.. I don't spend much time here these days. I don't spend much time anywhere come to think of it. :)

Person F: $the garden seems as deserted as the cookbook is…and both were at one $stage very popular placed to be.. [Double Code as History/ Origin Stories]

Person G: $Night [Person], glad we got to chat. [Positive Valence-Chatroom]

Person H: $...you still here [Person]????

Person I: $i have not seen u two in here for months..so nice and both at the same time.. [Positive Valence-Chatroom]

3.1.8   The Telegarden in the Public Eye
References to public mention of the Telegarden, in newspapers, websites, etc.

Person A: $On Television this morning, they had a   segment on the Telegarden, it $was really interesting, I believe it was Jeff Goldbloom, but could $be wrong, I tuned in after it got started

3.1.9   Other Experience of Telegarden Community – Experience of the Telegarden as a community or group of friends that does not fall under the above categories, including keeping in touch with members outside the chatroom (ICQ or e-mails referred to in the chat will not count), visiting other members in person, also general niceties about other members with positive valence, such as "Good to see you."

Person A: $[Person]...it might be, but is also a great place to meet othere ppl from everywhere in the world... [1998]

Person B: $Yes, I keep in touch with [Person 1], [Person 2], [Person 3], [Person 4], mostly through email an ICQ, when I find the time…been busy with my new job, but I'm catching up now and will have more time for the Garden:) [Double Code as Technology Beyond the Telegarden; Work]

Person C: $Missed a great party last nite, we celebrated [Person 1] & [Person 2] Birthdays, hot tub, drinks, etc.

Person D: $Hello, $Nice to see you… [Positive Valence-Other Experience of Telegarden as Community]

3.2 Analogical Reasoning

3.2.1   Virtual Socializing is Better than Real Socializing – Statements that socializing in the Telegarden or virtually affords a better experience than socializing in real life

3.2.2   Virtual Socializing is Equal to Real Socializing – Statements that socializing in the Telegarden or virtually can be directly equated with real life socializing

3.2.3   Virtual Socializing is Worse than Real Socializing – Statements that socializing in the Telegarden or virtually affords a worse experience than socializing in real life

3.2.4   Virtual Socializing is Not Comparable to Real Socializing – Statements that socializing in the Telegarden or virtually cannot be equated with real life socializing.

3.3 Effects of Social Life to Users

3.3.1   Physical – Mention of physical effects of socializing in the Telegarden, such as health effects.

3.3.2   Psychological – Mention of psychological effects of socializing in the Telegarden, such as feelings of support, boredom, happiness, loneliness, etc.

Person A: I am so bored, I am recovering from neck surgery and can not do anything. This place has been a life saver for me....almost like meeting in a community garden!! A community of world gardeners, I guess!! [Positive Valence-Psychological Effect; Telegardening is Similar to Real Gardening; Other Experience of Telegarden Community]

3.3.3   Educational – Mention of educational effects from socializing in the Telegarden, such as increased knowledge

Person A: $the computer makes it interesting in allowing us to visit and chat with so many people around the world… we are most fortunate….that strangers can become friends and learn from each other [Double Code as Technology Beyond the Telegarden-Positive Valence; Experience of Telepresence-Positive Valence; Friendship in the Telegarden]

3.3.4 Other

3.4 Social Life beyond the Telegarden

3.4.1   Identification – Self identification of name, age, or offering an address at which one can be reached or requesting such information from others. Discussion of other user's real names or identities. Note: Identifying the presence of oneself or others ("Hi Harold", or "David's signing in") or claiming "I am here" are chit-chat, not instances of identification.

Person A: $Anyway How old are you

Person B: $i'm thirty years old in the real world while in the cyberspace i'm ninety five years old. and you?

Person C: $you can touch me in [URL] ..

Person D: $well, I'm 15..

Person E: $my number icq is [ICQ Number]. [Double Code with Technology Beyond the Telegarden]

Person F: $...[Person] you have an excuse ..it is the time of the morning for you :-) … [*Code as Chit-Chat]

Person G; $[Person 1], Is your name [Person 2]? If so what is the meaning of [Person 1]

Person H: $..sorry [Person]..did I unmask you…

Person I: $[Person 1] …yes, [Person 2] is my reall name, but since some years I change my ID here in not specific time gaps…ask [Person 1], she knows many of different names here….*G* [Double Code as History]

Person J: $Yes, I do.. But I can't run it and NS at the same time until I get a better computer. #[Number] [Double Code as Technology Beyond the Telegarden]

3.4.2   Friendship Beyond the Telegarden– Discussion of friends who are not Telegarden members, friends or friendship as a concept, intimate or friendly relationships

Person A: $..her friend still with her????

Person B: $Oh yah...the boyfriend is still around. And she says she is $happy with their relationship. But she sure doesn't act like $it and also says some things that lead me to believe that $things aren't as great as she says.

Person C: $THE GARDEN $ $Friendship is like a garden. You must choose the seeds carefully and plant them with honesty. You must be sure to water with love. Help the growth with a sprinkle of kindness. Be sure to weed frequently to insure gossip and jealously do not sprout up. Carefully uproot hatred, bickering, malice, contempt and

unfriendliness, which has no place in the garden, nor should ever be planted. If properly taken care of, the but will blossom into a rare, but magnificent, true friendship.....

3.4.3   **Family** – Discussion of family or family members

Person A: $My Mother wasn't very nice to me today. I didn't go into work. But I $spoke to her on the phone. She doesn't like to be alone in the office. [Double Code as Work]

3.4.4   **Health** – Discussion of health, illness, injury, medication

Person A: $I have yet another cold. I have been to the Dr for more medication.

3.4.5   **Geographic Location** – Any mention of a specific geographic location, or asking someone where they are from. [NOTE: specific mention of the location of the Telegarden in Austria or Linz will code as Where is Telegarden and will not code here]

Person A: $what I find different between here in California and back home in Canada, $is that here everyone works tomorrow and back home is a day off and same with $Easter Sunday...some places are closed here but all closed back in Canada $if I remember right...*S* [Double Code with Travel/Vacation]

Person B: $[Person] do you have gambling in Germany?

Person C: $[Person]..too bad there is no gambling right here in California except $at the Indian Reserves...I don't even know where they are....back in $Canada they were popping up in bars and have three big casino buildings, $one is a fancy joint...*S*

Person D: $Might as well have gambling in Ca. keep the money here

Person E: $hello to everyone $ HI FROM CALIFORNIA

Person F: $Hi to california! It is really a beautiful country! I love it! [Positive Valence-Geographic Location]

Person G: $california is my homeland... $ this place is hella cool $ $ [Positive Valence-no content]

Person H: $hello [Person], where are you from?

3.4.6   **Work** – Discussion of work, career, jobs

Person A: $i'm always in the cyberspace because my research is about live image in web. [Double Code with Technology Beyond the Telegarden]

3.4.7   **Travel/Vacation** – Discussion of travel, trips, vacation, holidays, plans for these or accounts of them in the past Note: Mention of places to which people are travelling will be double coded as Geographical Location

Person A: $Hi [Person]. Getting ready for your trip?

Person B: $yep, getting ready slowly .. got all the tickets so far ...$$can't wait :)$$my flight to NYC goes friday afternoon [Double Code as Geographic Location]

Person C: $ $[Person 1]...when starts [Person 2] now his trip to the states??? [Double Code as Geographic Location]

3.4.8   Global/Political events/ Politics – Discussion of an event occurring on a global scale, a discussion of politics or political events

Person A: $I know [Person 1], I think about you and [Person 2] everyday when I listen to $the news, do you have any refugees coming into Austria? NATO Is $increasing the bombing   :-(([Double Code as Geographic Location]

Person B: $Bye [Person 1]! $ $[Person 2]...sure we have some, since 1992...!!!...they came to use...from the Bosnia 75.000 stayed for ever here in Austria.... $btw, this Bombeing made nothing better...in the worsest case this war could take much longer as all may expact...:((([Double Code as Geographic Location]

Person C: $[Person], Yes I fear it will take longer also, there is talk that they $will send in "foot soldiers" for an all out fighting war :-((if this $happens there will be much loss of life!

Person D: $[Person]...yeap, i know....when the NATO really send ground force, they will for sure not have an easy job...the Serbs have big experince in Partisan war...as the NAZIS blooding noticed in the WWII...:([Double Code as Geographic Location]

Person E; $[Person], let us hope and pray that this is over quickly, loss of life $is wrong, I feel for those people... Peace.... [Double Code as Moral]

Person F: $no good news from the Balkan for States...:([Double Code as Geographic Location; Negative Valence]

Person G: $sad news, 3 americans under arrest, Just heard they are going to hold them $for military trial!   I am fearfull this will turn into a ground war :-([Double Code as Geographic Location; Negative Valence]

Person H: $[Person]...maybe...this adventure goes closer and closer to non ending nightmare....:([Negative Valence]

Person I: $[Person] are you feeling any affects from the war?

Person J: $War news is not any better,,,Terrible pics of the tradgedy of $all those displaced people... [Negative Valence]

Person K: $yes...:((...but same pic. where aswell in Crotia and Bosnien.... [Double Code as Geographic Location]

Person L: $..The most terrible thing is that no one seems able to stop $the tradgedy at all... [Negative Valence]

Person M: $yeap...:((...and bombs sure not make that...

Person N: $oh yes...lot of money goes away for this war and now also quite alot to help this ppl....:(

Person O: $..They should have had supplys ready in these countries for $the refugees..before the 1st bomb fell...

Person P: $hi [Person]! $ $C...that is tomuch wanting from the millitary...*bad grin*

Person Q: $...[Person]..the war ?leaders? do not have practicle minds do they...

Person R: $Hello, [Person]. Are you upset about the Kosovo crisis? [Double Code as Geographic Location]

Person S: $Bonjour mon ami...   Yes I am concerned about life there, and troubled about $it, I only hope NATO can be successful, but something must be done

Person T: $Kosovo is sorrow. [Double Code as Geographic Location; Negative Valence]

Person U: $It is so sad, how can one person create such horror [Negative Valence]

3.4.9   **Moral** – Statements making specific reference to issues of justice, fairness, rights, welfare

Person A: $Maybe just gathering material for their next lecture-makes you feel kind of used-doesn't it? [Negative Valence]

Person B: $it does mostly...some thinking in the early day`s, that that is a big socilocial projekt and we all find use in Masterdegree work....*G*

3.4.10   **Chit-Chat/ Other** – MINIMAL CATEGORY—Only code entries that contain nothing but Chit Chat or other social discussion that is interpretable but does not contain significant content or content relevant to the above codes, and do not double code. Chit Chat is contentless or almost contentless postings: salutations, entrances and exits, routine phrases ("How are you?" "I'm fine, how are   you")

Person A: $well, gotta go for a bit.....bbl

Person B: $Bye [Person]!

Person C: $gone aswell... $*over and out*

Person D: $Hello!

Person E: $[Person] hello welcome to the TeleGarden...

Person F: $Hi "Sweetie"!!! $

Person G: $...hello [Person]... [1998]

Person H: $Hi Mum! How are you today?

Person I: $...I am fine..How are you [Person]????

Person J: $gotta leave for a minute,   BBL

Person K: $Bye then [Person]!

Person L: $[Person]...:)...

Person M: $Hello [Person]:)

Person N: $Hello [Person]

Person O: $...BBL...

Person P: $Bye ... BBL

Person Q: $Bye ... BBL

Person R: $Ok.//..^ [Person]...Take care..*S*

Person S: $Good Morning Garden

Person T: $hi!!!

Person U: $hi telegarden ;-)

Person V: $hi [Person]!

Person W: $hi [Person]!

Person X: $Hi [Person]! Good Evening :-)

Person W: $hi [Person]!

Person Z: $Hi [Person]

Person A1: $is anyone there?

Person B1: $Hi, anyone here?

4. Uncodeable

4.1   **Foreign Language Posts** – MINIMAL CATEGORY— Posts entirely in a language other than English.

4.2   **Picture or Song or Other Link** – MINIMAL CATEGORY – Posts that contain ONLY a link to a graphic, song, website, or some other link. [NOTE: Posts that contain a link along with other discussion will code as Technology Beyond the Telegarden]

Person A: $<center><img src="[URL]"></center>

Person B: $<center><img src="[URL]"></center>

Person C: $[URL]

Person D: $img scr=[URL]

Person E: $<img scr=[URL]

4.3   **Repeat Postings** – MINIMAL CATEGORY – Exact repition of an earlier posting.

4.4   **Gibberish, uninterpretable** –MINIMAL CATEGORY. Messages that cannot be reliably understood, comments that seem random and elicit no response, people posting seemingly to amuse themselves or fill space; acronyms such as LOL or BBL, *G* or emoticons

Person A: $Guess I'll just keep on playing...

Person B: $No bottles of beer on the wall...

Person C: $Pass it around...

Person D: $You take one down...

Person E: $One bottle of beer...

Person F: $One bottle of beer on the wall...

Person G: $brain

Person H: $backwards

Person I: $my

Person J: $on

Person K: $got

Person L: $I've

Person M: $it's like typing right to left... $ $...tfel ot thgir gnipyt ekil s'ti

Person N: $POOP...POOP...POOP...POOP...POOP

A. Valence

Note: Each valence code must be paired with a content code. The content code may be inferred from the context and may be a code that would otherwise be minimal. If the valence is in reference to the Telegarden without distinguishing whether the garden is experienced as nature, technology or social, the valence code will stand alone without a content code.

Aa. Positive – A direct statement of positive sentiment, satisfaction, enjoyment, enthusiasm, looking forward to something or positive evaluation. (Note: sentiment or evaluation is not to be inferred, but must be directly named by the speaker) Positive valence includes keywords such as: good, nice, glad, looking forward to, fun, interesting. Smiley emoticons or "*G*" (Grin) will not be interpreted.

Person A: $They don't always sprout and sometimes the plantings get so claose together it's hard to tell who's who…but yes it will be fun anyway… [Content Code – Intention to Plant]

Person B: $It is a long time since I have seen the garden, it is still nice [Content Code – Other Experience of Garden]

Person C: $this is neat $ [No Content Code]

Person D: $I must tip my hat to everyone at this site. I have only been in 5 chat rooms. The first four turned me off instantly. It took me 8 months to visit another one..this one...Interesting people here...nice chats...nice to sit and read during lunch...cant wait till I am permitted to plant someting....G'day.. [Code as A.a, AEC staff; A.b, Technology Beyond the Telegarden; A.a The Chatroom; A.a Intention to Plant]

Person E: $Must be very interesting-I thought at first that the garden couldn't be real, but now I don't care. It is an interesting concept and I stop by once a day. If nothing else it is neat to sit in

my living room and talk with someone from across the world. Thank you.. [Code as A.a; A.a The Chatroom; A.a Experience of Telepresence]

Person F: $[Person]...i'm member to here for more the 2 years and it's a good site it think.... $hit the chatbutton then you can see where the ppl are came from..:)) [No content code]

Person G: But I must say this is a great idea, gardening over the Internet. [Content Code – Experience of Telepresence]

Person H: $well I must say this is one cool idea. you can make life happen from thousands of miles away. Also, think about it, if we ever find a planet that supports life as we know it, you and I could do this from millions or trillions of miles away!!!!!! [Content Code – Experience of Telepresence]

Person I: $[Person]..most people do not like the 100 hits and being a member for 1 weeks $before being able to plant..they want to plant immediately...and it is $a good place and you will meet some nice people in here believe me..   [Code as A.b Hits Requirements; A.a Friendship in the Telegarden]

Ab. Negative Valence – A direct statement of negative sentiment, dissatisfaction, disappointment, displeasure, or negative evaluation. (Note: sentiment or evaluation is not to be inferred, but must be directly named by the speaker) Emoticons will not be evaluated, and will not count for valence. Direct expression of a negative association or response, including keywords such as: depressing, disappointing, sad, boring, frustrating, as well as colloquialisms such as "bummercity" and "sucks," or indications of expressive noises such as "argh"

Person A: $[Person], there are crocuses blooming in my VT garden. Pretty sad when the only gardening I can do right now is on my computer. Aching to get my hands in the dirt [Code as A.b Telegardening is Worse that Real Gardening; A.a Gardening Beyond the Telegarden]

Person B: $hallo. [Person]. I m very disappointet now. Cause I did more than 100 hits ann now the Message is $the telegarden is full. [Content Code – Garden is Full]

Person C: $arghghgh!!!! I can never plant again I guess. $ $bummercity…$ [Content Code – General Discussion of Hits Requirements]

Person D: $Hey everybody, whats up in this lame place? [No Content Code]

Person E: $: $Of course this place sucks,it's Dease lake what do you think $a place way up North is suppost to be besides winter wounder land. $ [No Content Code]

Person F: $THis is so stupid if it wasn't for this lame project I wouldn't be here what the hell are we suppose to do anyway plant a garden. [Content Code – Intention to Plant]

Person G: $Gee that's depressing..... $Nourish something and watch it grow.... $water, feed, love...... $then they come and yank them out! $ROFLMAO [Content Code – Discussion about Clearing the Garden]

Person H: $*pout* think i should go plant in the yard instead.....lol $wait a week and then to find out that eventually *yank* $lol. oh well. I'll give it a go. To bad they can't ship the $plant to you after......lol [A.b Discussion about Clearing the Garden; A.b Desire for Other Gardening Activities]

Person J: $obviously someone has mucked the place properly.. [Content Code – Other Experience of Technology in the Telegarden]

Person K: $My little Wire Haired Terrier is driving me crazy [Content Code – Other Nature Beyond the Telegarden]

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