PHEROMONE THERAPY: DESIGN FOR LEARNING ONLINE

Sue Watling
Centre for Educational Research and Development
University of Lincoln
Brayford Pool
Lincoln
LN6
+44 1522 886350
swatling@lincoln.ac.uk

Abstract

Learning online presents challenges for tutors and students alike. Resource materials have to substitute for face to face contact whilst also providing impetus and stimulation. Retention is recognised as a key issue when courses are delivered at a distance and the social aspects of learning online have been suggested as prime motivators in building a sense of collegiality. The Pheromone Therapy online course was designed to include opportunities for social interaction but students demonstrated how the learning experiences which were situated in practice, with opportunities for shared participation, created the greatest cohesion and sense of community.

Introduction To Pheromone Therapy

The last 10 years has seen the introduction of pheromone-related products for the management of a range of behavioural problems in small and companion animals but there was no formal or independent qualification for those seeking a wider knowledge of these treatments. In response to the increasing interest among veterinary professionals, Pheromone Therapy was designed to fill this gap. The short undergraduate level course was built around 12 multimedia tutorials and associated discussion groups and a range of inter-active learning objects with assessment via application of newly acquired skills through a problem scenario case-study. This paper looks at some of the innovative design features of this course and reports on findings from the designer's investigation into the student experience of studying online

Distance Delivery

Early distinctions between 'digital natives' and 'digital immigrants' have evolved into debates about levels of digital literacy; the digital divide is now less about access to technology but more about the ways in which it is used (Prenksy 2001, CIBER 2008). Distance delivery involves a dual learning curve where students need to not only achieve the course learning outcomes but develop confidence with computers. Confidence is not always a precursor of competence and when the prime delivery mechanism is a virtual learning environment then it should be expected that the student cohort is likely to present a mix of prior digital experience.

Innovation theory (Rogers 1995) recognises that identified need is a prime motivator for change in practice; for students this motivation is a return to academic study. The majority of distance delivery now involves some, if not all, online components, so

students selecting flexible models of education can face a technical as well as a pedagogic challenge. Designers of online courses need to recognise the dual nature of this challenge. Students uncomfortable with virtual environments are less likely to become successful online learners than those familiar with engaging with a range of digital resources. Ensuring time and opportunities are built in for students to find their digital feet, as well as their academic ones, is an often unacknowledged key to online learning design.

Pheromone Therapy was delivered via a 'conventional' virtual learning environment (VLE). The decision to use an institutionally hosted resource, and not to incorporate 'new' Internet social networking tools, was underpinned by the philosophy that the technology should enable learning and not direct it. This is not to say that new Internet technologies, such as participant led blog and wiki software, do not have educational validity, but it was felt important to ensure a digital baseline. This could be achieved by using the VLE already familiar to staff, thus reducing their digital learning curve, as well as maintaining existing technical support including the ICT Help Desk. The primary focus was to create an effective learning experience using resources that enabled social and pedagogical interaction. With appropriate content, it was felt that a typical virtual learning system could provide the balanced mix required.

This paper will look at the theoretical and the practical elements considered essential for successful online learning design. It will then look at some of the findings from the research into the student experience of Pheromone Therapy before concluding with suggestions for similar courses in the future.

Underpinning Theory

The technical processes of online delivery must reflect, and be informed by, appropriate pedagogical approaches. Accounts of online learning experiences have been criticised for failing to draw upon theoretical positions and following commonsense rather than theoretically informed design (Conole et al 2004). Underpinning practice with theory is essential if desired outcomes are to be effectively mapped against the most appropriate tools and activities.

Design for effective online learning requires a creative approach to rational issues such as curriculum alignment and assessment. When designing the Pheromone Therapy course it was felt important to move away from a content driven style that replicated the transmission model of face-to-face delivery. Rather than text based resources a more interactive environment was sought, one which supported a constructivist approach where students could engage in meaningful learning experiences.

Principles of social constructivist learning informed the development of collaborative opportunities for tutor and peer support. Opportunities for dialogue between tutor and students, and for a sharing practice, were seen as key to building effective learning experiences and synchronous and asynchronous discussions ensured a continuing 'conversation' throughout the tutorials (Laurillard 2002).

Figure 1. The Conversational Framework (Laurillard 2002)
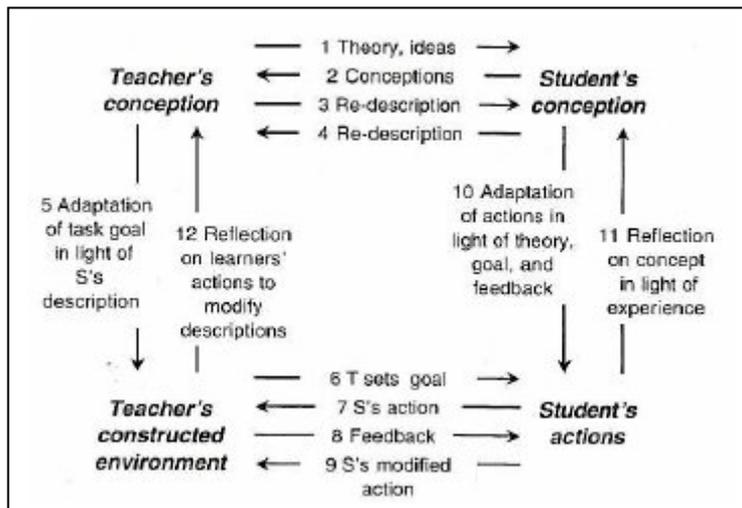
The affordance of the Internet for collaboration, and the nature of resource based, independent learning, assumes the student is both self directed and motivated. Yet these qualities are outcomes of higher education and not necessarily present from the start. Effective learning design benefits from appropriate scaffolding which provides student support as required and encourages the processes of independent thought. Such scaffolding exploits the Zone of Proximal Development (ZPD) defined by Vygotsky (1978) as the distance between the learner's current and potential cognitive development. Support from staff or peers, who already have the prerequisite skills, alongside opportunities for practice, create a framework of peer, social and task 'presences' identified as the foundation of a 'community of inquiry' and essential components of successful online practice. (Garrison and Anderson 2003)

Figure 2. The construction of a community of enquiry (Garrison and Anderson, 20**)
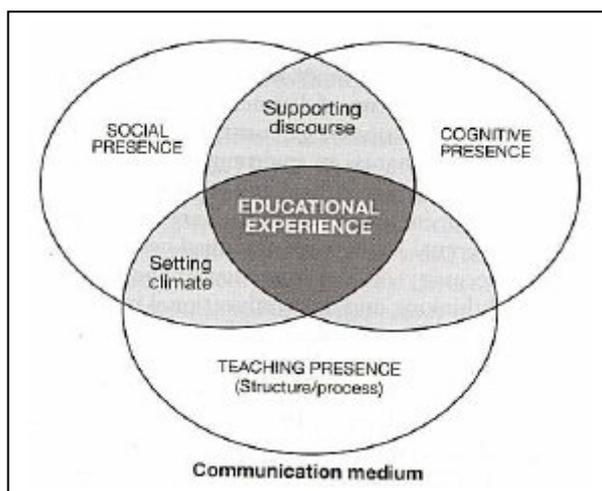
Students new to online learning may have initial difficulty communicating through text and those who work with educational technology on a regular basis need to remember that not everyone is comfortable participating in online discussions. Translating face-to-face support and social interaction into a virtual environment can

take time and models for establishing an online community suggest phased activities that encourage sharing of information (Salmon 2000).

The Pheromone Therapy course was underpinned by a network of interactions. Activities to build social presence included a 'café' discussion forum and a gallery of student photograph. Opportunities to apply learning to practice and enable meaningful engagement with content were offered on a weekly basis. The process of collaborative learning through shared activity encouraged student learning to be situated within their lived experience; helping develop a 'community' of social, peer and task relationships described by Wenger (1998) as a community of practice.

Design For Online Learning

Distance delivery poses a fundamental paradigm shift from traditional transmission modes. Didactic pedagogies become less appropriate as emphasis shifts from delivery to support; from the lecturer being the 'fount of knowledge' to the facilitator of the student learning experience. The design for online learning requires a multi-team approach including lecturers, learning developers and technologists with library and support staff. It is a complex undertaking and the time required to set up an online course is often seriously underestimated. Effective learning experiences require more than digitised lecture notes and handouts and if maximum advantage is to be gained from online communication opportunities, synchronous and asynchronous discussion needs to be planned, monitored and moderated. Unlike face to face delivery, virtual learning areas offer valuable opportunities for pre-course testing with critical friends and colleagues.

Effective learning experiences rely heavily on active user engagement with pedagogically informed content. This practice of creating a digital course, within an appropriate theoretical framework, can be best enabled through a model of instructional design where the essential processes are identified and given structure. Part of this process involves creating a framework of learning outcomes, appropriate activities and assessments, and then breaking it down into discrete, manageable chunks. Instructional design identifies key learning experiences, and staff allocation to tasks and responsibilities, within an overall time frame. The process offers a creative approach to rational issues such as curriculum alignment, and achievement of learning outcomes, but includes built in capacity for flexibility should the need arise.

Instructional Design. Traditional instructional design taxonomy has roots in the rudiments of face to face delivery and can be successfully applied to design for online learning. The ADDIE (Analysis, Design, Develop, Implement, Evaluate) instructional design model, based on the work of Fardouly (1998) encompassed the key stages, but it was felt that it failed to acknowledge the disproportionate investment of time and resources online learning design entails. The five stages were given different names which the development team felt were more meaningful to the process and the model was abbreviated to 3PD. The more descriptive names were:

- **P**lan(-ing)
- **Pr**epare (-ing),
- **Pr**actice(-ing),
- **D**eliver(-ing)

- **E**valuate(-ing)

In addition two key processes of **Induction** and **Interaction** were identified and incorporated into the Planning, Preparing and Practicing stages. Induction included activities focused on preparation for learning and establishing of social presence. Interaction involved the design and construction of activities designed to enable the cognitive and teaching presences required for creating the optimum conditions for successful learning online (Garrison and Anderson 2003).

Figure 3: The 3PD design model used in the Pheromone Therapy course
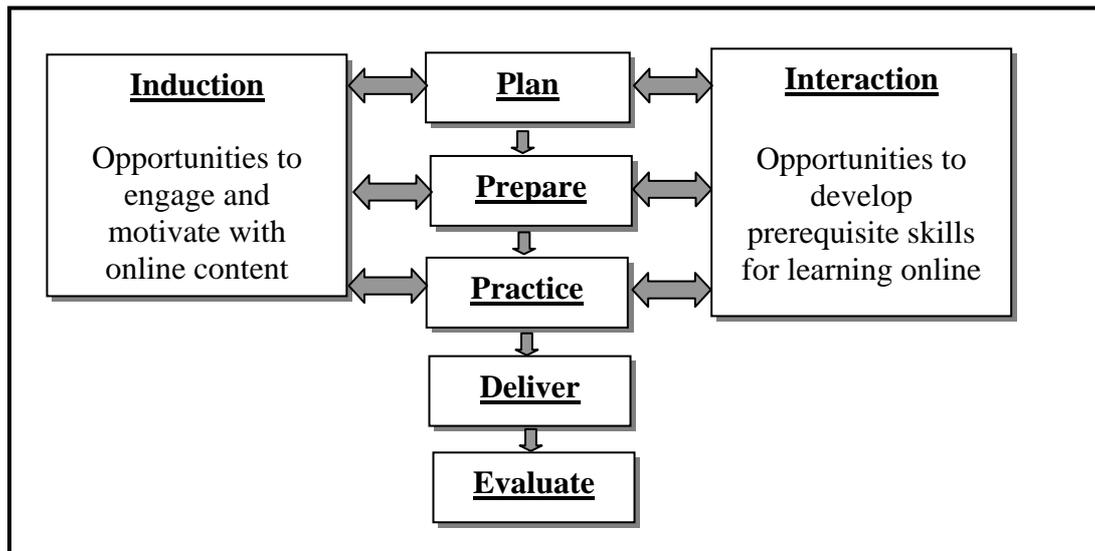
Induction As already identified, learning online poses a dual technical and pedagogical learning curve. Recognition of the need to become self directed, and take responsibility for learning, can be a challenge, especially if existing experience is limited the traditional transmission model. Pheromone Therapy used the Induction phases to create a pre-course space for dealing with technical problems without them impacting on progress in the early weeks of the course. This was also seen as the time to begin to build the social connections which were seen as integral to a successful online community.

The process of building online social links began with a request for students to introduce themselves and establish common links and points of interest. Further exchange of social information took place through an online photo gallery which was also an opportunity to check skills with uploading and attaching files. Extending this early collaboration, students were asked to engage with Net-etiquette and work together to construct their own preferred guidelines for communicating online. At the end of the Induction phase, students were asked to compare themselves with how they felt at the beginning thereby introducing the concepts of reflective practice that underpin the learning experience.

Induction began the process of building a social community at an early stage in the educational journey, before the course 'officially' starts. Opportunities for social exchange were seen as important for building confidence and establishing the skills necessary to operate successfully within a virtual learning environment. Ensuring a

'social' presence, and giving the cohort a sense of itself as a cohesive social group, was felt to be an essential component in building and maintaining a learning community. Most importantly induction was seen as a process that can make students feel valued and welcomed; a good experience at the start of the course increases the chances of completion.

Interaction Discursive interaction is key to the construction of meaning and knowledge. To maximise this potential, each Pheromone Therapy tutorial had an associated discussion area with pertinent questions and a weekly synchronous tutor led session. Interaction in forums can produce powerful learning experiences, but resource materials that support and enable interaction are also recognised as having valuable learning potential. Repurposing existing face-to-face content into small activity-based learning objects and chunks including active involvement with content offered rich stimulation. The challenge for the learning designer was to minimise the technical knowledge required to construct these activities so that the focus was on pedagogic content. Following the principle that 'interaction encourages improvement in learning', pheromone lectures were recreated as audio-visual tutorials that included narration, animation and video set in a user controlled environment. Each tutorial was supported by supplementary activities with formative and summative assessment opportunities. Supporting individual recall and revision, these check points for learning were produced using design templates which could be customised in terms of appearance and content with options for individual question feedback.

Principles on inclusive design were adhered to throughout construction of the learning area and all multimedia content was accompanied by appropriate transcript materials. Inter-activities were provided in a variety of formats including a textual alternative and an extensive pre-course evaluation 'tested' the interactive content with a variety of users and assistive technologies.

Research

The decision to research the student experience of the first delivery of Pheromone Therapy, in addition to the standard course evaluation, was seen as an opportunity to investigate what JISC (2007) described as being the 'under researched world' of the learner in a digital age. It was an opportunity to assess in more detail the effectiveness of the learning design and draw attention to identified course strengths and weaknesses. Having spent 12 weeks as participants, students could now feed directly back to the design team using their own voice.

Methodology
Methodology was based on a phenomenological approach to social research, which allows an examination of how the respondents construct, attach and share the meaning. This approach allows the research to explore in detail the student experience, and the value of the online learning experience, in terms of delivery and pedagogy and to suggest conclusions and recommendations to be made.

Phase 1 of the research was by online questionnaire with the 2007/08 student cohort. This included asking students if they were willing to participate in Phase 2 which would be administered using asynchronous email interviews. The rationale for this online approach was based on the impracticality of interviewing students in person

due to the wide geographical dispersion of the respondents, a common feature of online learning cohorts, and the difficulties of arranging telephone interviews with respondents who were all fully engaged with full time careers. Due to these constraints it was decided by the project team, in consultation with the respondents, that the most practical approach to data collection would be the combination of online survey and asynchronous email interviews, both of which respondents could complete at their own convenience. Although this method of data collection allowed the researcher to get access to respondents that would have otherwise declined to participate, there were a number of disadvantages, which are aptly highlighted by Bryman (2004: 477). These included establishing a rapport between the researchers and respondents and the length of time it took to complete the data collection stage (3 months). In addition, there were a small number of respondents who did not fully complete all aspects of the interview, which led to a small number of minor gaps in the data. Despite these minor drawbacks, the method of data collection allowed access to data that would have otherwise been unreachable.

The data was analysed using discourse analysis which allows an in-depth examination of how competing versions of reality are constructed and represented through language. The approach is appropriate for an online platform that is heavily, if not solely, reliant on the electronically written communication. The discourse analysis was extended to transcripts of the forum discussions.

Research findings
The induction phase of Pheromone Therapy, designed to ensure students had the necessary technical skills to be successful online learners, lasted for two weeks. This was thought to be adequate at the planning stage but students reported that they would have liked a longer period of time to become accustomed to the virtual environment.

"I would have appreciated receiving the induction materials earlier than I did."

"I recommend that you get the materials out at least a month before the start so all kinds of glitches can be sorted."

These comments emphasised the importance of not under-estimating the value of pre-course preparation.

When asked about over increase in confidence with using the technology, students typically reporting positive benefits from participating on the course:

"[I now feel] more confident with future online learning programmes since participating in this one"

The number of students who rated their computer skills as 'not confident' at the start of the course (41.2%), had significantly increased their rating to 'confident' by the end of the course (75%).

Overall, the students were unanimous that the course had been a beneficial learning experience; they valued the content but found the pace too fast with many students suggesting fortnightly rather than weekly tutorials. There may need to be a greater spread of the workload in future courses or it could have been a reflection on the

students' pre-existing level of digital skills; the question will be more carefully phrased in subsequent investigations.

Students were unanimous in highly rating the Pheromone Therapy lectures, in particular the user controls enabling replay and revision, and the provision of transcripts to all students were seen as excellent tools for enhancing learning.

The Interactive assessments designed to engage students with content and assess levels of knowledge throughout the course were rated by all students as 'Very Useful'. Comments on the Inter-active assessments included:

"Well designed to build up knowledge."

"Very helpful and many more could be included in the future."

"They were a quick and entertaining way of learning."

"I enjoyed the multiple choice questions on this week's activity."

"Useful and clarified my understanding."

The discussion groups attached to each tutorial were also highly valued. One interesting outcome was the extent to which the tutorial discussion groups were the main focus of learning experiences while the social café forums were largely ignored. The most effective learning in Pheromone Therapy appeared to derive from the sharing of practice-based knowledge and experience. Lave and Wenger suggest a series of activities to stimulate the development of a community of practice and Table 1 shows how discourse analysis of the discussion forums identified examples of this process.

Table 1. Examples from discussion transcripts showing the development of a community of practice.

Activities suggested by Lave and Wenger (1991) as integral to communities of practice.	Discourse analysis from discussion transcripts
Problem solving	I was wondering what advice would yu give to an owner who has adult cats and wants to introduce a dog to the household
Requests for information	I've been reading the 'Truth about Dogs' by Stephen Budiansky…does this suggest that some associated stress behaviours cannot be avoided?
Seeking experience	I know this wasn't one of the discussion group questions but I would like to ask how many people do home visit behavioural consultations rather than the client coming to the clinic
Reusing assets	I listened last night to a lecture on the hospitalised cat – evaluating the stress. I will put some of the point on another thread

Coordination and synergy	I have some of these lectures on cd rom and will try to circulate them; hope to get something organised next week.
Discussing developments	Does anyone use any other assessments that I can't think of here?
Documentation projects	Here's the link. I hope it will work. If it doesn't I can send anyone who is interested the pdf file.
Mapping knowledge and identifying gaps	I've never done kitten socialisation classes but would be intrigues to see one. It would be interesting to find out if people think kitten parties would help

It was anticipated that the discussion groups would enable student learning but the extent to which students were less interested in interpersonal communication was unexpected.

When asked about the importance of getting to know fellow students the typical response was

"I don't feel it was necessary"

Asked about reasons for not contributing to the Gallery revealed similar responses:

"It was nice to see but I don't really feel it was that beneficial."

"It didn't make much difference to me personally."

"It would be better if photos had to be posted as part of registration or else you do not bother and the 'opt out' mentality begins."

Students were also asked if they missed an opportunity to meet up for an induction day; the majority of other distance delivery courses at the university encourage a face-to-face induction session but this was not seen as detrimental.

"Maybe if it was a longer course but not sure it would make a huge difference."

"It was the fact that I didn't need to do campus inductions and getting to know other students that this course appealed to me"

Conclusion

Pheromone Therapy presented a unique opportunity to design and construct an online course. Innovative practice included pre-course Induction activities designed to give students the skills required to be successful online learners and wide use of multimedia and inter-active resources. Prior to building the course, opportunities for online socialisation were seen as key to building a successful online learning community but the research into the student experience indicated that the attention of this cohort was focused exclusively on situated learning. Encouragements to build social relationships outside of a work environment were largely ignored and online communication was notably restricted to the application of new knowledge to practice and the sharing of that experience. There are two clear implications for future course

design, in particular in terms of providing an online experience that is inclusive and pedagogically effective. They are firstly, the expected confirmation that students need time to find their digital confidence prior to starting their course and secondly the unexpected finding that students have less interest in 'getting to know' each other socially than received wisdom might lead us to believe. Attention will be paid to this in future research to establish if it was a feature unique to this group or an identifiable feature of all practice-based learning. From the experience of the Pheromone Therapy course, it could be suggested while current emphasis on the technology of education has benefits for some, course designers should not forget the pedagogy that underpins all virtual learning environments. Successful online course design needs to focus more on the 'learning' and less on the 'e' if e-learning is to continue widen participation in higher education and offer effective student learning experiences.

References

Bryman, A. (2004) *Social Research Methods*. Oxford: Oxford University Press

CIBER (2008) Information Behaviour of the Student of the Future. A CIBER Briefing Paper. Retrieved 2 April 2009 from http://www.ucl.ac.uk

Conole, G., Dyke, M., Oliver, M. and Seale, J. (2004) Mapping pedagogy and tools for effective learning design. *Computers & Education*, 43:17–33.

Fardouly, N. (1998) Learner-Centered Teaching Strategies. *Principles of Instructional Design.* The University of New South Wales, Australia.

Garrison, D. and Anderson, T. (2003) *E-learning in the 21st Century: A Framework for Research and Practice.* London: Routledge.

JISC (2007) In Their Own Words. Retrieved 2 April 2009 from http://www.jisc.ac.uk

Laurillard, D. (2002) *Rethinking University Teaching.* 2nd Edition. London: RoutledgeFalmer.

Lave, J. and Wenger, E. (1991) *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Prensky, M. (2001) Digital Natives, Digital Immigrants, *On the Horizon*. NCB University Press 9 (5)

Rogers, E.M. (1995). *Diffusion of Innovations* (4th ed.). New York: Free Press.

Salmon, G. (2000) *E-moderating: the key to teaching and learning online.* 2nd Edition 2003. London: Taylor and Francis.

Vygotsky, L.S. (1978). *Mind and society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wenger, E. (1998) *Communities of Practice*. CUP.