

Laurillard's Model: - Public and Private Aspects of Knowledge

Introduction

The question of how learning occurs has been debated nearly as long as the question of how life first appeared in the universe. The famous philosopher Aristotle was possibly the first to record a theory of learning development, and his basic theory has lasted through the centuries, undergoing relatively few changes, and eventually appearing in models developed by researchers such as Pask and Laurillard, which will be discussed later. Laurillard's model is the most recent to make use of the same basic ideas as Aristotle, namely the idea that learning has two important parts; conceptual/public and practical/personal (Saugstad, 2013). This idea is one of three key elements in Laurillard's model, and underlies her research in learning and classroom teaching methods.

Laurillard's Model

If one were to generalize Laurillard's model to a single aspect, it would be the importance of the interaction between the teacher and the learner. Laurillard's model specifically emphasizes the importance of a dialogue between the learner and the teacher in order to achieve in depth comprehensive learning. Yet this requires two important components: both conceptual, or public knowledge, and practical, or private knowledge. Without attention in both of these areas, the teacher and student cannot hope to communicate understanding thoroughly.

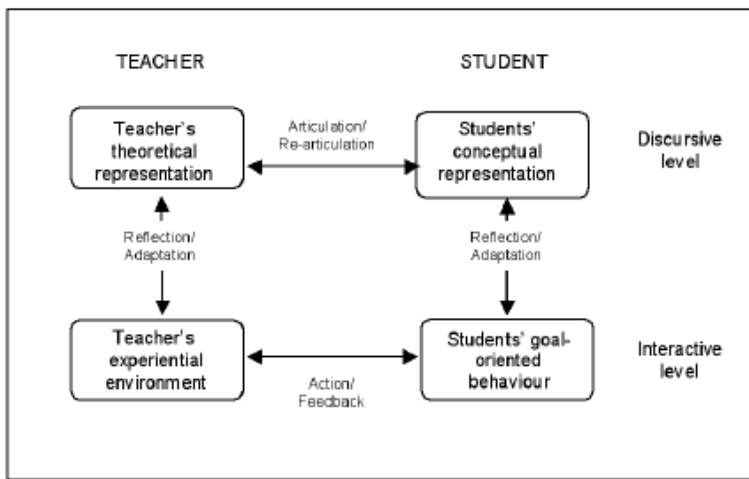
In this model the teacher and the learner use both **Abstract** (conceptual/public) and **Practical** (experiential/personal) knowledge.

- **Abstract knowledge** is meant as theoretical knowledge, what we think about the world, and is learned mainly through speaking, such as lectures or discussion.
- **Practical knowledge** is learned by actively engaging with the material, and how we act upon what we know. In academics, this often takes the form of experiments and models.

Laurillard expresses the importance of reflection on what we know during the learning process. It is important for the learner to reflect upon what the teacher is telling them, as well as their experiences whilst engaging with the material. An example may be in a Maths lesson where the teacher demonstrates on the board how to solve a calculation, and the learner then later working on similar problems on their own. Similarly it is also important for the teacher to engage in reflection as well, to reflect on the student's understanding of the topic and thus perhaps changing their teaching method to ensure learning ensues. In accordance with the previous example, the teacher might receive feedback from a student who fails to understand how to solve the maths problem, and may then try to explain the problem in a different way to see whether the student understands it then.

Laurillard proposes that there are four components which are crucial to the learning process.

- 1) **Discursive** – There must initially be a discussion between teacher and learner about the topic to assess a general “knowledge basis”. *The teacher explains the theory and the learner responds.*
- 2) **Adaptive** – The teacher must then adapt the learner's understanding by either enhancing it or correcting it. *The teacher challenges the learner's knowledge*
- 3) **Interactive** – The learner then actively interacts with the topic to enhance their experience and understanding. *The learner applies their understanding to a similar concept*
- 4) **Reflective** – The learner reflects on the experience and adapts their own conception and description on the topic or issue. *The learner paraphrases the understanding to illustrate that they understand fully.*

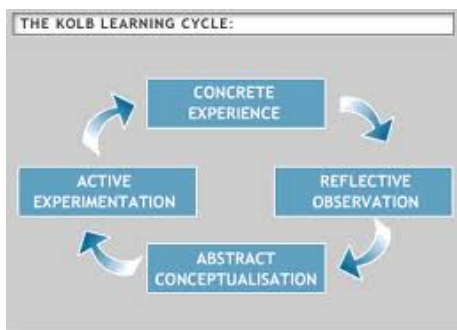


The figure above illustrates how this interaction occurs, and demonstrates that there is more than a one-way interaction between student and teacher in order for learning to occur. The teacher must know what the student's level of understanding is in order to enhance learning, whilst the student must actively engage with the material in order to gain a deep level of understanding.

Laurillard (1993) uses this model to enhance the importance of using both theory (abstract/public) knowledge and practical experience with that knowledge to consolidate learning. By illustrating how important dialogue, active engagement with the material, and feedback is from both learner and teacher she emphasizes the importance of not relying too much on technological media during the learning process as there is not as much of an interactive element, so overuse of such media may not efficiently enhance understanding. For instance, whilst a video may be very informative, there is little if any room for the learner to interact with the medium, ask questions or ask for clarification of complicated issues. Similarly, computer based tutorials are also limited since the learner is engaging with the materials in a very constrained form (for instance, multiple choice which leaves little room for display of deeper learning). However, Laurillard does state that media-based teaching may be very effective as complimentary components to the learning experience.

Support for Laurillard's Model

A learning theory developed by David **Kolb** in the 1970s made use of a cyclical model very similar to Laurillard's. He argued that learners go through four stages of learning, beginning with a personal experience, leading into consideration and reflection on the experience. This naturally leads to an attempt to theorize about why that experience happened, and eventually an attempt to test the theory (Atherton, 2013). To use a famous, if not strictly factual, example, before gravity was an accepted scientific fact, someone had to discover it. One man, being hit on the head by a falling apple, besides noting the pain, realized that apples always fell to the earth when dropped, and thus an experience leads into reflection. In similar fashion, he notes that everything seems to be drawn towards the earth, as even something thrown upwards will eventually make its return. Of course, he assumes that there must be a reason for it, and proceeds to the third stage of learning. Finally, having adopted a theory that some kind of force attracts us to the earth, he set about to prove it mathematically, and thus gravity was discovered and Kolb's learning cycle demonstrated long before he was even born. Of course, this cycle may take anywhere from a few seconds to decades to be completed, and may even repeat itself numerous times until the student finally proves his or her theory to be correct (Atherton, 2013). The following diagram illustrates the four-step model.



<http://www.le.ac.uk/users/rjm1/etutor/resources/learningtheories/kolb.html> width="292"

height="211" />

In addition to Kolb's work, Laurillard's model is backed up in different ways by a variety of research. Several other theories demonstrate that the idea carried through Laurillard's work, namely that conversation is important for learning, has been utilized for decades.

The "**Conversation Theory**" developed by Gordon **Pask** describes how two or more cognitive systems conversing in dialogue can affect understanding of a concept through discussion and consolidation of different understandings of the same topic (Scott,

2001). This sort of interaction allows people to learn from each other's personal experiences, to discuss theories, and strengthen or discard their own theories through the added information gained from others.

Another researcher, **Vygotsky**, also argued that cognitive development had its origins in social interaction. Imagine what you remember from primary school, what do you remember most? Chances are you'll remember interactions with teachers or classmates more than you'll remember actual classroom work. Thus Vygotsky claims that social interaction is instrumental to learning (Hausfather, 1996).

Furthermore, the importance of dialogue in learning has been seen as important for centuries. It was used in ancient Greece and Socratic Dialogue is still seen as an important tool in tutoring (Laurillard, 1993).

One potentially major problem with Laurillard's model is that there are far more learners than teachers, so one-to-one learning becomes a bit unpractical. However, Laurillard's ideas have still been helpful in improving quality of learning in situations where there is one teacher to many learners, such as a large lecture. Mazur (2001), showed that allocating time for Q&A into a lecture vastly improved understanding in students. If one student has a question, it is likely that another student also has the same question. If not, a question posed by one student may express an idea or perspective which another student may not have thought about, then causing them to engage with the material in a new way using the idea expressed in the question. **Cutts et al.** (2004), illustrated several issues which need to be overcome in order to ensure teacher-learner interaction in a lecture:

- **Identified Responder:** Learners may be hesitant to draw attention to themselves in the presence of their peers in fear of getting the answer wrong
- **Response Range:** There is a wide range of understanding within a large group which may be difficult for a teacher to detect. If only the most intelligent students respond to the material, the other students will feel intimidated and the teacher will over-estimate the overall level of understanding in the class.
- **Response Relevance:** Some discussions may be relevant for some students but not for others
- **Monitoring progress:** Dialogue between student and teacher may be non-verbal. For instance a teacher may look over the learners shoulder to observe the learning process. This may be difficult in a class of many students to one teacher.

However, there are ways of overcoming these issues to enhance learning in classrooms. Using a Group Response System (GRS) (Draper & Brown, 2004), students could from individual devices, anonymously post questions to a communal forum during the lecture. This way, students did not need to risk embarrassment when asking a question and the teacher got a good grasp of the range of understanding. Thus the dialogue channel between teacher and students becomes more enriched and there is a better all-round reflection on the material from both students and teacher.

- All this shows that enabling students to access more ways to engage with the lecture, be it by allowing time for Q&A, or using a GRS, or other methods the lecturer might think of, learning was enhanced. Thus the importance of both public and private knowledge is important for the learning process.

This is much like the Twitter system used in our own CERE lectures. Whilst posts are not really anonymous, questions and additions to the topic could be offered by students without interruptions to the lecture and any questions were eventually given some time for discussion.

Furthermore, Wilkes-Gibbs (1986) found that when strangers were asked to describe abstract shapes to a partner who was required to select the same shape, descriptions at the first stage of selection were very detailed and abstract, but quickly dropped in detail and number of words as the partners shared meaning with each other. This alignment of meanings supports Laurillard's model that a teacher and pupil must "align" their internal representations of what is being taught and discussed in order to then move forward with teaching and learning.

Criticisms and Other models

Chi et al.

One issue with Laurillard's model may be that the importance of teacher-student discussion may be overemphasized. Chi et al (2008) showed that students watching a recording of a tutorial learned just as well as being in the tutorial, provided that they had a peer with whom they could discuss the content of the tutorial. This indicates that maybe the importance of one-to-one interaction between teacher and student may be overemphasized, and it is the discussion and engaging with a different perspective which really influences understanding.

Phil Race

Making Learning Happen, a book by Phil Race, also criticizes the cyclical models of Laurillard and Pask. He claims that it is unnecessary, and overly academic, to organize learning into such a model, favoring instead a simpler division of learning into five key elements. These five elements are: wanting to learn, needing to learn, learning by doing, feedback, and lastly, digesting or

making sense of what has been learned (Race, 2005). These must occur together for efficient and thorough learning to occur. It must be noted that his model still contains the components of theoretical and practical learning, although only practical learning is expressly stated. His problem appears to be with the cyclical nature of Laurillard's model, not with the importance she places on both public and private learning. In fact, in a series of lecture notes published in the second edition of his book, Race states "teaching is helping people to turn information into knowledge by getting them to do things with the information and giving them feedback" (Race, 2010). This clearly supports Laurillard's position on conceptual and practical learning, in spite of the fact that he tries to discredit much of the model she builds from it. Below is a diagram of what Race argues is a more reliable and accessible model of learning.



<http://www2.rgu.ac.uk/celt/pgcerttit/how/how4d.htm> width="400" height="400" />

Tough

In the 1970's Allen Tough and colleagues researched how much learning adults did independently of courses and teachers. They found that 90% of people had conducted at least one project within the last year of being asked, and 4/5ths of these projects were independent of teachers and courses. They concluded that people have no trouble doing and managing their own learning, and lifelong learning is present in samples from 16 to 60 years old. This shows that learning is not limited to Laurillard's model, and can often occur quite independently of educational settings.

Chick Sexing

Originally training in sexing day old chicks took 6-12 weeks of high levels of practice and feedback from an expert. However, after the creation of a leaflet the skill became easy to learn just by reading the leaflet (Biederman & Shiffrar, 1987). This indicates that perhaps not all skills need the involved process Laurillard describes. Some basic skills may not require feedback from a teacher or active personal involvement with the theory, but a simple "how-to" instruction may be sufficient.



Connections to other areas in the course

Because it is one of the three main elements underlying Laurillard's model of education, the public/personal learning theory is closely connected to several other important topics covered in this course, such as the importance of a teacher, feedback, and student-generated content.

Laurillard's (1993) model also relates to the importance of the **interaction between the teacher and the student**. As noted earlier in this wiki, dialogue between teacher and learner is very important for the learning process to be effective. Furthermore, both the teacher and the students need to engage with public and personal knowledge. The teacher needs to introduce and explain the public knowledge to the learner, and then design ways in which the student can practically experience it to contribute to their personal knowledge. The teacher also needs to use their own personal knowledge about the topic to adapt to the learners knowledge level and progress. Without the teacher's guidance the learner's development of both public and personal knowledge of a topic may be impaired or incomplete. However without responses or output from the student the teacher will have no idea how to best guide the student towards adequate knowledge concerning the topic. Hence, the interaction between student and teacher is very important to consolidate both public and practical aspects of knowledge.

Feedback is essential in this model of education. The student requires feedback when forming his or her ideas and theories to ensure that they are properly utilizing important information. Lectures, group discussions, papers and other assignments may all serve to solidify a student's opinions and theories on a topic, and outside feedback from other individuals can greatly shape and alter the formation of said theories (Laurillard, 1993). Then, as they seek to apply the theories that have either been given to them or created by themselves, students may require assistance in experimentation or building models. Teachers can offer assignments such as science lab experiments or math problems, and grade them, letting the student know how well they truly understood and applied their conceptual knowledge (VanLehn, 2013). Later on, as they assess the results of their personal experiences, experiments, and so forth, an impartial outsider may be necessary to ensure an objective analysis, and to help them adjust their theories according to the data. The teacher can fill this role, giving feedback and advice in where the student's weak points are, how that affects their progress, and suggestions on how to fix those areas to achieve a more complete understanding (Allan, 2014).

In Laurillard's model, **student generated content**, when held within certain parameters as set by the teacher, can be extremely important, especially in relation to public and private learning. Students may learn better when they design their own experiments and are allowed to create their own theories. For example, a teacher may give a lecture, covering the basics of any given topic, then encourage students to research aspects of particular interest to them. In later classes, they might engage in discussion, each sharing what they found, and might design experiments to test their theories under the direction and tutelage of their teacher (Clark, 1986). Admittedly, this may be an extreme example, but the two-part learning theory presented by Laurillard and others does make it a possibility, rather than simply relying on teachers to lecture their way through a course. Because student-generated content encourages students to engage in the material and do their own research, it promotes both conceptual and practical learning. When students present and discuss the information they have found, their theoretical knowledge is strengthened and expanded. Support from the teacher and peers will help encourage them to apply the knowledge, and direct it towards some practical means to demonstrate and support their theories to their classmates and teachers (Wilkes-Gibbs, 1986). This, however, may be limited to smaller seminars and tutorials, where one teacher is discussing information with a small number of students, thus being able to guide and monitor the conversation. In a large lecture theater with hundreds of students, it is not likely that student generated content is likely to result in any additional practical or conceptual understanding beyond that already found in research papers, labs, projects and homework assignments.

Conclusion

Laurillard's model describes many different levels to effective learning. According to this model part of what makes for effective learning is the engagement with a subject on both Public (theoretical) and Private (practical) levels. Laurillard claims that public and private knowledge are only sufficiently engaged with through involved interactions between the teacher and the learner, as well as reflection on the topic by both parties.

There are a lot of theories and research which supports Laurillard's model. Pask, Kolb, and Vygotsky all supported the importance of interaction between learner and teacher. Furthermore they also argued that through discussion and other interactions knowledge changes and is actively processed. Furthermore, studies show that increasing the opportunity to actively engage with a (for students) normally passive learning environment such as a lecture, quality of learning improved. Also, whilst Laurillard's model is typically restricted to a one-to-one teacher-student interaction, studies have shown that her ideas can be adapted to work in a situation with many students to one teacher, such as a lecture (Cutts et al 2004).

There are however some criticisms of Laurillard's model. Criticisms include the overemphasis on the importance of the teacher (Chi et al 2008 & Chick Sexing), that the model is too complicated (Race, 2005), and that independent learning is highly possible (Tough, 1978).

Furthermore Laurillard's theory and the need for engagement in both private and public aspects of knowledge can be applied to many different topics within the CERE course.

If you could only read one paper:

A 1993 article by Laurillard, titled *Balancing the Media*, seeks to explain the basics of her model of education, and the effects and uses of different styles of media on that model. Although it rarely specifically mentions conceptual and practical learning styles, the topic is woven into her entire article, evidenced by multiple references to the teacher's or student's thoughts, conceptual understandings, theories and ideas. In a similar way, practical experience and experimentation is also mentioned frequently, demonstrating how important these two concepts are to Laurillard's framework. All in all, this article explains her theory and uses quite well, maintaining interest without being overly in-depth as to be confusing and muddled for a non-expert.

It is available for free online here:

<http://ebookbrowse.net/diana-laurillard-balancing-the-media-pdf-d292813512> (<http://ebookbrowse.net/diana-laurillard-balancing-the-media-pdf-d292813512>)

If you were to read 3 papers:

In addition to the Laurillard article mentioned earlier, there are a couple more articles which might be useful in providing a more complete sense of the topic. Some of our favorites are listed below; one for a more hurried and basic reader, and one for the more advanced and interested learner, although both groups should find valuable information in any of the links below.

Atherton's website contains several articles which can be very useful as quick and simple references. While they are not very in depth, they can be utilized for a quick review of Laurillard's model of education and how the two learning factors discussed in this wiki fit into that model. They also contain some information about the theories of Kolb and Pask, which may prove to be some use in making sense of the topic.

The following links should be of service:

(<http://www.learningandteaching.info/learning/experience.htm>)
(<http://www.learningandteaching.info/learning/experience.htm>)

(<http://www.learningandteaching.info/learning/pask.htm#two%20levels>)
(<http://www.learningandteaching.info/learning/pask.htm#two>) levels

On the other hand, for those interested in an in depth look at how conceptual and practical learning appear in actual higher education programs, the following papers provide a more in-depth look at how Laurillard's model may be applied.

Maximizing dialogue in lectures using group response systems, an article by Cutts et al, (2004) begins with an excellent description of Laurillard's model of learning. It contains simple, easily understood descriptions, yet is also a comprehensive analysis, pointing out problems and weak points in application of the model provided by Laurillard. It then proceeds to offer ideas and methods for combating the weak points in applying the one-on-one model to a larger group setting, citing research done in classrooms at the University of Glasgow as examples of what the Laurillard model may look like when applied with the suggested adaptations. This article would be a great follow-up after reading Laurillard's 1993 paper for students wondering how to balance the theoretical learning with hands-on experiential learning.

The article may be accessed through the following link:

(<http://www.dcs.gla.ac.uk/~quintin/papers/cate2004.pdf>)
(<http://www.dcs.gla.ac.uk/~quintin/papers/cate2004.pdf>)

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