

Chapter 4

Adult Learning Theories: The collaborative Learner Progression

The study of learning and teaching has been captured well by Knowles, et al (2005), where there are “theories of teaching” (p. 104) and “theories of learning” (p. 28). Knowles (2005) quotes Gage, (1972, p. 56) when describing the difference between a learning theory and a teaching theory: “Theories of learning deal with the ways in which an organism learns, whereas theories of teaching deal with the ways in which a person influences an organism to learn” (p. 73). Understanding these differences will help us make better choices as teachers/facilitators and students.

In the fire service we are constantly faced with many challenges to both, initially train new recruit firefighters, and to provide consistent and sustainable continuing education in a multitude of subject areas. The advancements in technology, as well as requirements for continuing education, requires a fresh look at how the fire service prepares all levels of firefighters to learn during their fire service careers.

The fire service is a traditional para-military environment, which requires adherence to a “chain of command” type atmosphere. If the chain of command, and its autocratic nature, isn’t managed within the learning environment, there is a risk to have students focus on performance goals, not on learning goals. The difference being a performance goal is just that, to perform. Their performance motivation may be to not have the instructor yell at them in a training environment, instead of focusing on mastering the subject of the learning goal.

[Chart 4.1](#), (Knowles 2005, 196) is adapted from “Pratt’s (1998) model of high and low direction and support.” shows the Collaborative Learner Progression. This

progression reflects the Andragogical nature of adults that was discussed in chapter 3. Adults want to be responsible for their own learning, and they want to be involved in the planning of what they will learn. Even though adults want to be responsible for their own learning, they still need the direction or guidance of a teacher under certain circumstances.

[Chart 4.1](#), shows two points on the progression where a learner will need much direction from the teacher. When a fire service recruit first enters the fire service, and when there is an opportunity for experienced firefighters to learn a new skill where they have little previous knowledge. The latter category can pertain to new technologies, paradigm shifts, new standards, or other subject areas where they lack the relative knowledge to perform.

New recruits customarily either attend a training academy (depending upon jurisdictional policies, which may be 12 -20 weeks in length), or receives on the job training (OJT) from their department. If the autocratic para-militaristic mindset of the instructors is allowed to permeate the full length of an academy, there may be significant opportunities for growth and insight which may be lost. Initially, the recruits will require much direction and correction to ensure they understand the concepts. By the instructor's transitioning into facilitator's, then into collaborative learners, the students will have the opportunity to (without fear) try out what they've learned. It isn't reasonable to expect recruits to have fully developed schema, leading to high road transfer in novel situations. It is however reasonable to expect them to have built new schema onto their limited prior knowledge of the learning subjects. This new knowledge hopefully may lead to low road transfer in similar contexts.

How well the learner is able to retain new information and perform depends upon the preparation of the learner to be mindfully engaged, the learning environment, and cognitive load of the learners. This preparation to be mindful, and send collaborative learner messages, should be the instructor's responsibility. In fact, Knowles (2005) describes how adults exposed to andragogical adult education models often times "experience a form of culture shock" (p. 117). Knowles, (2005), states that in 1995 he added "preparing the learners" to his process elements, as the first of eight elements (p. 116).

The next consideration of [Chart 4.1](#) is the continuing education of incumbent firefighters as they develop throughout their careers. If you assemble a group of fire company officers, one consistent theme which seems to surface in discussion is the apprehension which comes from the thought of training their own firefighters. I believe this apprehension emanates from their only model of instruction being pedagogical. They treat their firefighters like children, and they are the teacher. What Knowles, (2005), et al, have shown to be a much more effective method is the collaborative learner process. If these officers approach their firefighters to suggest or solicit topics for learning environments as "collaborative partners" (Knowles, 2005, p. 13), they will most likely find them more open and willing to learn because their andragogical principles are being met.

Cognitive Load Theory

Chandler (1998) describes how we must process through our "working memory" (p. 1) for something to be learned. Since our working memory has limitations for "both

capacity and duration (Simon, 1974)” (Chandler, 1998, p. 1), if the methods or other factors in the learning environment inhibit the working memory “from processing it, then learning and understanding will be hindered” (Chandler, 1998, p. 1).

What this means for the fire service is, if we allow learning environments that tax working memory by their nature, there is less available working memory for the students to fully process what we want them to learn. Again, autocratic learning environments have been proven to inhibit the learning ability of students. As Knowles (2005), et al, quote Goodwin Watson (1960), “An autocratic atmosphere also produces increasing dependence upon authority, with consequent obsequiousness, anxiety, shyness, and acquiescence. All these traits from autocratic atmospheres could potentially reduce the working memory of students.

Chandler (1998) breaks out two forms of cognitive load: 1) Intrinsic load – which is what he describes as “elements interacting”, where “an element is any information to be learned that is held as a single item in working memory” (p. 30). The premise of intrinsic cognitive load deals with how many single items are being processed at the same time. The more elements that are being simultaneously processed in a more complex learning environment, the more potential for intrinsic cognitive load . 2) Extraneous load – “is generated by the intellectual complexity of the learning material, extraneous load is determined solely by how the instructions are formatted.” (P. 3). What this means for us in the fire service is the realization that it does matter how we design our learning environments. Chandler (1998) gives an example of extraneous load from the effects of “inefficient instruction” (p. 3) resulting in higher extraneous cognitive load: ”is when

teaching materials present mutually referring information separately (eg. A diagram and text) (p. 3).

The goal of choosing the Andragogical methods of adult learning, which support a collaborative learning progression, seek to achieve a lower overall cognitive load. By lowering the overall cognitive load the student potentially has more working memory to process the material being taught.

Chart 4.1 (Knowles 2005, 196) is adapted from “Pratt’s (1998) model of high and low direction and support.” The Collaborative Learner model shows the Collaborative Learner Progression, and the instructor – learner dependency ratio. The typical fire service career is portrayed above the line, where the repetitive cycle of new paradigms and new technology or procedures is portrayed below the line. The vertical lines indicate how much instructor/teacher direction is required. The horizontal line indicates how much dependency on the instructor/teacher the student exhibits.

An important concept to note, is that the progression may repeat itself over and over again as new knowledge is required. The most difficult position for an instructor, especially in the fire service, might be to have an advanced career person who is at high need for direction and dependency from the instructor. This situation, if recognized by the instructor as a pedagogical model, can be made more productive as the learner is prepped to accept the direction and dependency to learn enough new knowledge to where they require less direction and are less dependent on the instructor. Then the instructor/teacher can move into a facilitator role, lessening the learner dependency. The eventual goal for the instructor/teacher is to become collaborative learners with their students/learners.

Chart 4.1

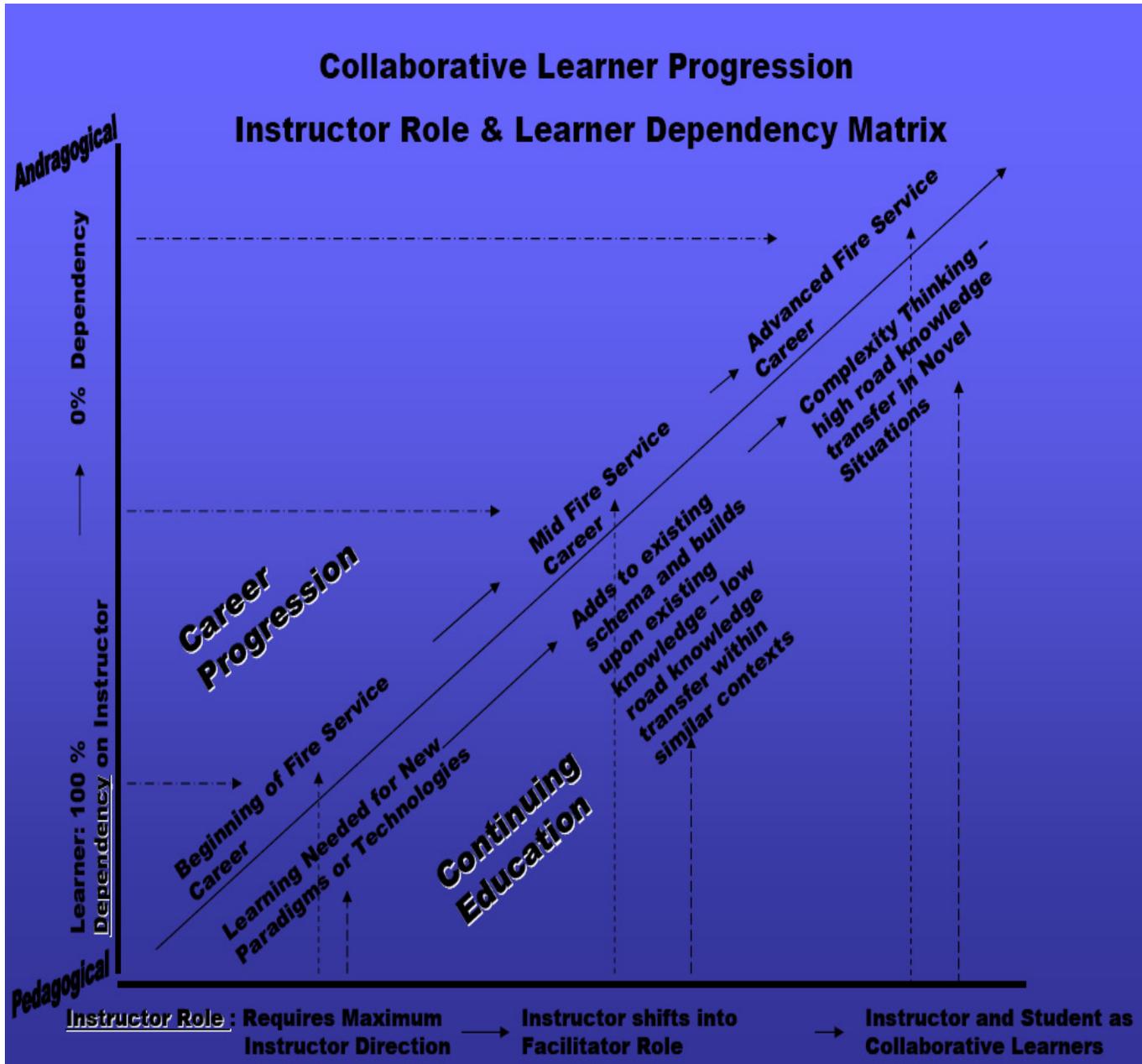


Chart 4.1 is adapted for the fire service from “Pratt’s (1998) model of high and low direction and support” (Knowles 2005, p. 196).