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Cognitive Development – Creamy or Crunchy

Instructor: Before making the peanut butter sandwich, determine the age-based ability level of the learner. Some may not yet be ready for making a peanut butter sandwich, and it would be pointless to make a learner perform above their cognitive development level. The learner may become frustrated... or more likely, the instructor.

Ages 0-2 years: It is best just to feed the peanut butter sandwich to the child if the child is capable of eating solid foods. During this phase, the child's motor nerves are developing and probably shouldn't hold a knife. The child may have a hard time recognizing peanut butter if not familiar with the substance and is still in the process of having that idea in his head. This learner will not want to share, and will more likely focus on which muscles are needed to get the peanut butter into the mouth, if hungry. If not hungry, the learner may experiment with the sandwich in other ways, such as painting with peanut butter or squishing or dropping the sandwich.

Instructions: Eat your sandwich. Mmmm... nummy. No, don't throw! Take little bites. All done? Oops, it's on the floor. Ok, hands? Let me wash them. Good girl (or boy).

Ages 2-7 years: At this point the child can visualize the sandwich and may be able to determine the layers needed. The child is still growing, and will probably need guidance, but is capable of mental representation. It may be useful to pretend making the sandwich. Pretend opening the peanut butter and spreading before following the instructions. This would be the minimum ability level to attempt sandwich making, though judgment may be lacking if parameters are outside of the experience of the learner.

Instructions:

Wash up please. Did you wash up? Go do it, or you won't get a sandwich. Good.

Can you get me two pieces of bread? Thanks, but I only need two pieces.

Untwist the tie. Oops – let me do that. Ok, here are two pieces.

Now put them on the plate. Good job.

Turn the lid on the jar.... No, the other way... ok, now put the lid down

Here, let me put some peanut butter on the knife for you.

Oh, you want to? Ok, not too much.

Spread the peanut butter... ooh, careful you don't get it on the counter.

Ok, hand me the knife. I'll clean the knife. You put the sandwich together.

Yes, put the bread on top of the peanut butter.

Now squish it down

(They love that)

Good job! Now wipe the peanut butter off the counter.

No, not with your hands. Use the napkin.

Good, now throw the napk... come back here. Don't wander off. You're not done yet.

Good job! Now get the peanut butter off your hands.

Ok, now throw the napkin away.

Good. Now eat your sandwich.

What? You don't want it all? Ok, eat half and then you can play.

Good job.

Ages 7-11 years: Within these years the learner can solve concrete problems. These students won't need as much instruction with jar and bag opening. They may not be able to process how to make sandwiches for 27 people with only 14 pieces of bread, but they can likely make a sandwich with instruction or previous experience watching sandwiches being made. A learner in this range may be able to put the instructions in order if out of order, but may not be able to think through the consequences of leaving the sandwich on the counter for a week.

Instructions: Ok, get two pieces of bread, peanut butter and a knife. You'll probably need a plate and napkin too. Wash your hands so you don't get sick. Spread the peanut butter on one of the slices of bread and use the other slice to make a sandwich. Be sure to clean up afterwards.

Ages 11 years onward: These learners may be able to make complex decisions and think hypothetically. They may be able to choose whether the sandwich ought to be made and who should receive it. They could probably figure out how to make a sandwich with only the ingredients present, or very minimal instructions. These learners will likely work systematically until their sandwich is complete. These learners can also examine the morality of wasting peanut butter while impoverished people go hungry.

Instructions: If you're hungry, you could make yourself a sandwich. There's some peanut butter, if you want to try some. But I don't want to clean up your mess.

Note how the younger groups are trying to **assimilate** knowledge. The 0-2 group is still learning about peanut butter and the taste and texture of a sandwich. The learner may also be experimenting with density, effects of gravity on the sandwich and possibly air trajectory launched from a human hand. Older learners may **accommodate** the PB sandwich into their set of sandwiches. This may take longer if the student has never experienced a

paste-based sandwich before. Older learners may be at **equilibrium** or the mastery stage. If the learner has never experienced such a sandwich, they may experience a little disequilibrium until mastery is gained.

As the learner practices making the sandwiches, the steps will become more automatic until the learner does not have to think about it in active memory (**Case**). The student may modify and correct their techniques over time (**Sternberg**).

Caution (Criticisms):

Age levels may be inexact, and not all children reach the same levels all at once. A student may be on the border between two groups and need some simplified instructions while capable of other tasks more complex. Feel free to modify the instructions as needed. The stages may not be separate, but continuous. Also, the stages may become mixed in that some adults may need to overcome their limited sandwich perspective, and some 2-7 learners may be capable of thinking ahead. Piaget may have been groundbreaking in his recognition of ability levels, but may have been limiting in his separation of cognitive levels. (**Siegler and Carey**)

Siegler's Sandwich:

It may be instructive to have the younger learners (I would suggest over 2 for safety's sake) figure out how to make sandwiches on their own. A learner may make sandwiches different ways. They may be very open to new ways of thinking though, as minds are quite variable. Choices are made. It may require more cleaning than is desired by the instructor, but sandwiches can be made in different ways. Let them experiment until they have techniques that work for them.