Question: “Developmental psychologists often worry about the distinction between competence and performance. Discuss why this distinction is important and illustrate your answer with examples from the course.”

The issue of differentiating between competence and performance on a cognitive task is a fascinating psychology puzzle. Its conundrum arises when we wish to measure any cognitive skill; in the difficulty of designing a task that tests a subject’s ‘competence’ of this skill without any additional complexities that might cause failure. The significant gap between observable performance and underlying competence has sparked some interesting debate over what exactly is going on in the mind and which measure we should consider more important.

Competence in this context of this question can be understood as “the idealised capacity that is located as a psychological or mental property or function” (Awal & Bahar, (2013), p76) while ‘performance’ refers to the production of behaviour that demonstrates this underlying knowledge. The competence vs. performance question crops up across many branches of psychology but poses particularly tricky in developmental psychology where we lack the ability to the discursively inquire into a subject’s mind. You cannot converse with toddlers or chimps on the structure and limitations of their own mental representations.

At some level, the issue is that competence cannot be observed directly, it must be implied by testing a performative task that necessitates its understanding. For example, you cannot test if a child understands the concept of negative numbers directly, you have to design performative subtraction tasks to tease out the underlying competence. A performative task by definition then, must always be at least incrementally more complex that the conceptual understanding itself. This means that you can never know if a task is failed because of a genuine lack of competence or performance is flawed because of other cognitive limitations.

Additional complications arrise in that we do not gain access to skills or knowledge all at once; we gradually develop them, often by trial and error. Before we get something right, we will fail a lot, and continue to make mistakes even once we have acquired a general skill. For example, you might successfully cycle down a road without falling off your bike long before you develop a safe and engrained facility to cycle, and similarly you might fall off your bike many years after you have become a proficient cyclist. So, the issue is complicated both ways, not only would we predict a gap between what a subject might actually know and what we would be able to demonstrate their knowledge of, but we also have to be careful that we don’t immediately ascribe competence after successful performance as it might be erroneous.

Jean Piaget was a 20th century Swiss pioneer of developmental psychology who unwittingly carried out many of the studies that would prove to be the foundation for the performance-competence debate. One such study was the ‘coin stretch’ test in which 2 rows of 5 coins were laid out in a straight line in front of a toddler aged around three, then one of the rows is spread out in front of the subject to make a longer line than the other. The child is then asked; “does one of the rows have more coins, or are they the same?” Piaget demonstrated, that younger children consistently assume that the number of coins in the stretched row must now be greater. Piaget found many similar ‘conservation error’ results for physical quantities such as volume, area, weight etc. He observed that children begin to pass this test arround 4-year-olds, and so concluded that this is roughly when we develop a conception of number independent from spacial configuration.

There were many criticisms of Piaget’s timescale of ‘conservation error’ in cognitive development. However, it’s very difficult to disprove a model like this theoretically. The only thing you can do is invent new tests that can be successfully passed and then start to investigate as to what might fill the space. One such test was that ‘naughty teddy’ test which was almost identical to the coin stretch test, only that instead of the questioner altering the coin arrangement themselves, naughty teddy springs out from under the table and ‘messes up’ the coins to the same effect. The researches showed that some significant amount of the conservation error disappeared. This is the competence-performance gap in action. One possible explanation for it here is that the task is quite pragmatically strange, perhaps the experimenter is leading the child on by moving the coin themselves to create a sense in the child that ‘something’ must be happening. It could be strongly argued that children’s errors on this task are not a full reflection of their understanding of the world. In this way, we are driven to come up with continually simpler tasks to better aproximate a base level of competance.

However, this begs the question of whether the performance gap between tasks that were designed to test the same skill mean anything. Is it merely enough to resign the old findings when a ‘better’ test of competence supersedes it? I suspect the distinction does matter. Showing that in perfectly set up conditions you can demonstrate a child as having some rudimentary understanding of algebra is completely useless if they can’t use this representation to solve any real-world problems. So, we can’t throw out more complex studies as they are a better reflection of how the world actually appears to us. The concept of performance is indispensable as everything we do requires it.

The case for the primacy of performance is clearer in studies done on apes. Human studies tend to be framed by a developmental narrative, so we concern ourselves heavily with the first signs of emergent cognitive capabilities on the path to adulthood. However, apes never advance beyond toddler level cognition in many domains so it becomes less relevant what artificially constructed tests they can pass; what matters more is what they can do with their current capabilities. Chimps might show some evidence of theory of mind in specifically constructed laboroty experiments (Buttelmann et al. (2007), Dev. Sci), but what’s more important is whether they are able to utilise this theory of mind in a meaningful way. For example, the ability of a subordinate ape to recover and eat hidden food when a dominant ape did or didn’t see the hiding take place. (Hare, Call & Tomasello (2001), Animal Behav.) I would argue the same often applies to humans, we should care more about the pragmatics of what a can actually be done by cognitive agents than obsess over the earliest detectable signs of development into a skillset.

In conclusion, we must accept the irreducibility of the hard problem; knowing whether we have detected the true baseline of a subject’s competence. This is why is important try and tease out whether children have underlying innate competance before they exhibit it in a task. However, personally I think the more interesting side of the coin is pragmatic performative tests, on the basis that competence has no application in the real world. Overall, it’s clearly important to study and understand both in the modelling of cognitive development and the competence-performance gap gives us an opportunity to explore the mechanisms by which agents are failing to employ their understanding, deepening out understanding of the mind.

# Bibliography

Schacter, D.L. (2016) *Psychology* (2nd European edition). London; New York NY: Macmillan Educational/Palgrave.

Rabagliati, H. (2019, January). *Piaget’s Theories.* Presented at Psychology 1B. Developmental Psychology, University of Edinburgh.

Geller, E.H (2011) *Competence vs. Performance.* [*https://www.psychologyinaction.org/psychology-in-action-1/2011/04/15/competence-vs-performance*](https://www.psychologyinaction.org/psychology-in-action-1/2011/04/15/competence-vs-performance)

Surian, L. & Leslie, A.M. (1999) *Competence and performance in false belief understanding: A comparison of autistic and normal 3-year-old children.* British Journal of Developmental Psychology (1999) 17, 141–15.

Awal, E & Bahar, H.B. (2013) *Significance of Linguistic Competence over Communicative Competence enlightened through the devices of Discourse Analysis.* IOSR Journal of Humanities And Social Science, Volume 7, Issue 5 (Jan. - Feb. 2013), PP 75-80