Evaluate Piaget's theory of cognitive development in light of recent criticisms

Piaget was a hugely influential developmental psychologist, who raised many key questions about child development and attempted to provide possible answers for these in his theory. Using techniques such as clinical interviews, he argued that children progress through four developmental stages (sensori-motor, pre-operational, concrete operational and formal operational) in an invariant order and that within each stage, changes in qualitative thought processes are apparent (Smith, Cowie & Blades, 2003). The theory proposes that development is domain-general (areas of achievement are connected) and that stages are universal; that they are characteristic of all children, everywhere (Piaget, Inhelder, & Szeminska; 1948, 1960, cited in Berk, 2006).

The main assumption of this theory is that it stresses the importance of the 'active' learning, derived from the child’s natural curiosity of their surroundings. As Piaget put it; “everything you teach the child deprives him of the opportunity to discover it himself” (quoted in Baldwin, 1980, p.277).

Piaget's theory provided the impetus for a large amount of further research and as a result, many contributions, implications and controversial criticisms of his theory have now become apparent. It is in light of these recent findings that Piaget's theory will be evaluated in this essay, to determine whether it can still be upheld as a valid explanation of child development.

One of the most popular criticisms of Piaget's theory is the argument that he greatly underestimated the capabilities of children within certain stages of his theory (e.g. sensori-motor, pre-operational). Replications of experiments have shown that by using more meaningful contexts and realistic tasks, children acquire skills in each stage far earlier than Piaget anticipated (Schaffer, 2004; Smith et al., 2003). Margaret Donaldson (1978, cited in Sutherland, 1992) is extremely critical of the way in which questions were asked in Piagetian experiments and the way situations were expressed. For example, she criticises the methodology of the three mountains task given to pre-operational children, which was designed to test their egocentricity. Donaldson argued that the task was too complex to do justice to their abilities and believed that changing the method would yield different results which would contradict Piaget's theory. She quotes work by Hughes (1975), who conducted a more realistic task variation on the three mountains task and found that children as young as 3 ½ years old could decentre, disproving Piaget's assumption that they could not so until the end of the pre-operational stage (7 years old). This reinforces Donaldson's argument of contextual importance and Piaget's lack of acknowledgment of this leading to underestimations in children's development.

Further replications of Piagetian tasks, such as object permanence (Baillargeon, 2004; Bower, 1982) and conservation (McGarrigle & Donaldson, 1974) have also concluded that children are capable of acquiring skills far earlier than Piaget anticipated, thereby strengthening this argument against his theory and highlighting the importance of methodology (Berk, 2006; Schaffer, 2004; Smith et al., 2003).

Contrary to other stages, where Piaget seems to have underestimated children, it appears that he overestimated people's formal operational ability, which was believed to be apparent by the age of 12. Keating (1979, cited in Berk, 2006) for example, found that about 40% to 60% of college students failed Piaget's formal operational problems. It can be argued that these results are again due to methodological flaws in Piaget's tasks or because people only think abstrackly in situations in which they have experience; maths and science increases propositional thought, and social science in methodological and statistical reasoning (Lehman & Nisbett, 1990, cited in Berk, 2006).

This suggestion was not ignored by Piaget, who in the later stages of his career, stated that perhaps all adults are capable of formal operational thinking but only do so on problems that hold their interest or is important to them (1972, cited in Shaffer, 1996).

Moreover, although Piaget's theory clearly underestimated or overestimated the abilities of children, in his defence, Piaget stressed that the key concept of his theory is the invariant order of the stages, rather than the specific ages children acquire abilities, which are due to individual differences in the environment and genes (Berk, 2006). Therefore, although there has been an overwhelming amount of contradicting evidence of when children acquire skills, they may not have detrimental effects upon the core principles of Piaget's theory.

In addition, in defence of Piaget, Lourenco & Machado (1996, cited in Eysenck, 2004) argued that critics over-estimated the abilities of children and suggested that “having concluded that Piaget under-estimated the competence of young children, his critics failed to realise how often they were victims of the converse, false-positive error” (quoted in Eysenck, 2004, p.532).

As noted previously, Piaget's theory suffers from various methodological issues; he used unrealistic contexts in experiments and ignored the use of language. In addition, other limitations of Piaget's methods have also become evident due to recent criticisms.
For example, he used methods such as clinical interviews and observations, which enabled Piaget to obtain very detailed information on the child's development (Schaffer, 2004). However, these techniques have also been criticised as being subjective and unscientific, making replication difficult, and decreasing the reliability of the results (Smith et al., 2003). On the other hand, this criticism has been acknowledged by Piaget, who relied less on interview techniques later in his work, to avoid any experimenter bias (Schaffer, 2004).

The idea that the stages are 'universal' and that class and culture have no effect on development presents another major criticism of Piaget's theory and has also sparked a great deal of research into cultural influences on the performance of Piagetian tasks (Schaffer, 2004).

For example, Dasen (1977, cited in Schaffer, 2004) administered conservation tasks to diverse cultural samples (e.g. Eskimo, Aboriginal, African children) and found that non-western children show a significant lag in acquiring operational thinking. However, although the rate of development differed, the interesting finding was that children from different cultures still progressed through the stages in the same order. Therefore, culture influences the rate of development, but not the 'invariant' sequence, which supports Piaget's assumptions.

Many other research has been conducted since the establishment of Piaget's theory, both developing and contradicting his concepts.

For example, an alternative approach to Piaget's theory is the information processing approach, which argues that 'stages' of development are in fact non-existent; processes are present at all ages, just to a greater or lesser extent (Smith et al., 2003). The existence of this alternative approach in itself is a criticism of Piaget's theory, as many researchers have found support for this theory, which directly contradicts Piaget's concepts.

A major principle of the information processing approach, for example, is that it takes a domain-specific viewpoint; contrasting to domain-general development proposed by Piaget (Sutherland, 1992). Evidence for the domain-specific viewpoint is demonstrated in an experiment by Chi (1978, cited in Smith et al., 2003), who found that children skilled at chess remember patterns of chess configurations better than adults who were inexperienced at chess. This indicates that domain-specific skill is more important than domain-general skills, which is a major weakness of Piaget's theory as it questions one of the fundamental concepts underlying the basis of many of his other assumptions.

Another criticism of Piaget is that he focused too much on active learning and ignored the effect of social environment on the child's capacity to learn (Hill, 2001).

In contrast to Piaget's theory, which ignored the importance of social interaction, Vygotksy's Sociocultural theory emphasised this as having major influences on development, stating that 'we become ourselves through others' (Hill, 2001, p.145).

Evidence also shows support for Vygotksy's theory over Piaget's theory of development. For example, as mentioned earlier, Donaldson demonstrated young children's competence at taking the perspective of others in tasks that are socially meaningful to them (Sutherland, 1992). Hamlyn (1978, cited in Sutherland, 1992) also argues that prior to knowledge acquisition, there must be an agreed norm as to what the truth is; this implies that there is a social group agreeing to that norm. This counters the idea that individuals learn in a social vacuum, as suggested by Piaget.

To conclude, Piaget's theory of cognitive development has received many methodological and theoretical criticisms. Through neglecting to acknowledge various factors, such as the role of sociocultural context on development and the fact that many of his fundamental assumptions may be incorrect (e.g. development being domain-general), Piaget's theory may not be perceived as an entirely valid explanation of development.

However, Piaget has acknowledged these limitations and made a conscious effort to modify areas of his theory (e.g. motivations behind formal operational thinking, fewer interviews used) and hoped that principles of his theory could be integrated with other alternative theories to gain a fuller insight into child development (Hill, 2001).

Moreover, because of the huge influence of Piaget's work on our understanding of development and its impact on education (e.g. marked the shift to 'child centred' education and gave us methods of teaching which maximises each child's potential), it can be concluded that the negative aspects in his theory do not negate its positive and gravitationally influential effects. However, we must not dismiss the criticisms entirely, as these are what will inevitably develop Piaget's theories and introduce new concepts, adding to our understanding.

In summation, as a scholar quoted by Bellini (1992) once said, "assessing the impact of Piaget on developmental psychology is like assessing the impact of Shakespeare on English literature... impossible" (quoted in Shaffer, 1996, p.273).
References


