

Kuhn and the Pre-paradigmatic Nature of School Psychology

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Thomas Kuhn's (1962) infamous book *The Structure of Scientific Revolutions* has been extremely influential and a source of serious debate among philosophers of science and psychologists since the date of its publication (Driver-Linn, 2003). In the book, Kuhn depicts science as a developing process that passes through a series of stages that are influenced by diverse historical and social settings (Sankey, 2002). The stages outlined by Kuhn include pre-paradigm, paradigm, crisis, and revolution. When examining Kuhn's model in relation to school psychology it seems that the stage that best describes it is the pre-paradigm stage. Therefore, in this paper we will (a) briefly discuss Kuhn's model of scientific revolutions and highlight the pre-paradigmatic nature of school psychology, (b) examine the pre-paradigmatic nature of early psychological theories that influenced the development of school psychology as a discipline, (c) discuss the general theories that were predominant throughout the 20th century; and lastly, (d) explore how views of intelligence have developed in a manner consistent with a science in the pre-paradigm stage.

Kuhn's Structure of Scientific Revolutions

According to Kuhn, as a science emerges and develops, it progresses through four distinct stages: preparadigm, normal science/paradigm, crisis, and revolution. In the initial pre-paradigm stage, the science is somewhat fragmented and characterized by eclecticism (Kuhn, 1962; Sankey, 2002). Typically, professionals in a field of science at this stage do not share common tenets or vocabulary and there are coexisting methods, approaches, and theories (Driver-Linn, 2003; Sankey, 2002).

Only when consensus around a basic viewpoint forms is a science seen to be in the paradigm stage (Sankey, 2002). Essentially, professionals within a field of science at this stage

adhere to a set of shared fundamental assumptions and as a result, focus their research on specific issues, employ certain methods, and produce a wealth of research in support of the paradigm (Driver-Linn, 2003; Sankey, 2002). Often, the beginning of a paradigm is defined by a single exemplary historical achievement in a field of science, for instance it might result from a discovery, a significant experiment, a formula, or even a book (Sankey, 2002). As Sankey (2002) notes, this achievement is seen as the founding point upon which scientists within a field get their inspiration and examine phenomena.

Kuhn thought that science was in its normal state while in the paradigm stage. However, instances arise within disciplines when certain problems cannot be solved by the current paradigm. This creates what Kuhn referred to as an anomaly, which often leads to a stage of crisis (Sankey, 2002). Generally, the discovery of an anomaly generates a sense of unease in the field and precipitates the consideration of novel solutions (Kuhn, 1962; Pajares, n.d.; Sankey, 2002). Only if a solution consistent with the prevailing paradigm emerges does the field remain in the paradigm stage.

However, if the solution to the anomaly requires a novel explanation that is at odds with the current paradigm, a revolution takes place (Sankey, 2002). A revolution, or paradigm shift, is defined by significant changes in viewpoints because the new viewpoint is seen as being incommensurate with the old one. Nonetheless, while the crisis and revolution stages lead to a new paradigm, it does not lead to an advancement of knowledge; it simply provides a different set of principles to understand phenomena (Driver-Linn, 2003).

Overall, Kuhn's perspective of scientific revolutions emphasizes the idea that a particular field of science is dominated by a single paradigm at a time and until an anomaly arises it is resistant to challenge or change (Pajares, n.d.; Sankey, 2002). In turn, disciplines that have never

been ruled by one paradigm exclusively but rather have always encompassed a number of different fundamental ideas are best described as being in the pre-paradigm stage.

When employing Kuhn's model to evaluate the current state of school psychology the notion that one paradigm must dominate is crucial in drawing conclusions about the state of school psychology as a science. Given the rather categorical nature of Kuhn's model (Kashdan & Seger, 2004), wherein each stage is demarcated by specific characteristics, it seems that the field of school psychology would best be characterized as a science in the pre-paradigm stage.

More specifically, when taking an historical stance, it seems that while certain theories or ideas have guided the field at times, more often there has been a plurality of competing ideas, in which the relative influence of each has waxed and waned with varying degree of success over the years (Fagan & Wise, 2007). In addition, in contrast to Kuhn's view that sciences in the paradigm stage are rigid and not easily revised, school psychology as a science has seemed to emerge and evolve as a discipline in a more gradual fashion, with differing coexisting fundamental ideas (Sankey, 2002). Specifically, throughout the history of school psychology theoretical structures have often been modified, separated, and combined in ways that are not consistent with the monolithic nature of a science in the paradigm stage (Sankey, 2002).

Early Perspectives of School Psychology

As a central figure in the history of psychology in America, William James recognized the complexity of human beings and the importance of considering diverse views and ideas about human consciousness and behaviour (Berliner, 1993). In turn, he saw value in conducting research in a variety of ways by employing a number of different methods that were specific to one's approach (Berliner, 1993). Thus, while James endorsed an idiographic, experimental approach that emphasized cognitive conceptions of individuals, he saw value in approaches that

were more experimental and behaviouristic in nature. Essentially, James accepted that different theories of human behaviour and mental processes could exist alongside one another as long as each worked toward making progress in the field of psychology (Berliner, 1993).

Clearly, the views of James reflect a science in the pre-paradigm stage. James' psychology was one that was eclectic and open to accepting differing views and understanding of human beings. In addition, due to the fact that James' theory and ideas coexisted along with other theories, which are briefly described below, it is evident that no one paradigm ruled the field around this time—a point that is crucial in determining whether or not a discipline has reached the paradigm stage of Kuhn's model (Sankey, 2002).

Some of the coexisting approaches and theories that prevailed around the time of James and after include: (a) Stanley G. Hall with his developmental theory and child study movement that emphasized nomothetic principles and studied children in their natural environments (Benjamin & Baker, 2004; Berliner, 1993); (b) John Dewey and his functionalist approach that emphasized the importance of a personal, idiosyncratic approach for each child, and the need to be tentative in generalizing results from the laboratory directly to the classroom (Berliner, 1993; Cahan, 1992); (c) Lightner Witmer and his clinical method that emphasized an idiosyncratic approach and the application of psychological principles to the classroom and children (Fagan, 1996); and (d) Edward Lee Thorndike and his extreme experimental approach to psychological science, wherein he endorsed the notion that everything learned in the laboratory could be directly applied to children in the school setting without modification (Berliner, 1993).

Despite the fact that there are some drastic differences between the ideas, approaches, and theories of the aforementioned individuals, each theory exerted some influence at the time they were conceived and continue to exert some influence today (Berliner, 1993). Importantly

though, it is crucial to note that no one view, theory, or approach ever completely dominated the field of psychology. Rather, each theory gained dominance and popularity at one time or another among individuals in the discipline.

The impact that various theories have had over the years has been greatly influenced by the social and political context in which they arose and as a result, the popularity or dominance of various theories has waxed and waned (Sankey, 2002). Just as no one paradigm dominated thinking in psychology in the past, it seems that no one theory dominates the field of school psychology today (Fagan & Wise, 2007). As Fagan and Wise (2007) note, due to the fact that school psychology takes place in a variety of settings and includes a number of different practices, it continues to be defined as a discipline that embraces diverse theoretical viewpoints and orientations. Thus, the next section will highlight the pre-paradigmatic nature of the discipline by exploring more general theories and perspectives that impacted school psychology and gained popularity throughout the 20th century and continue to be relevant today.

Predominant Theories of the 20th Century

Mentalism

There have been arguments that mentalism should be considered a paradigm which dominated psychology before being overthrown by behaviourism as the dominant perspective in 1913 (Kirsh, 1977). Leahey (1992) describes psychology of this time as a science of consciousness which incorporated the method of introspection; however, there were disagreements over fundamental foundational issues. In 1898, Edward Bradford Titchener depicted two approaches to psychology, structural and functional psychology; this was quickly followed by debates between psychologists on which perspective was the 'true' perspective of psychology. Therefore, since there was not a definitive foundational function in psychology,

Kuhn would consider this period of psychology to be characterized as pre-paradigm and not a normal science (Leahey, 1992).

During this time, society in the United States of America was also changing and for a variety of reasons psychologists found themselves focusing more on social adjustment and behaviour than on consciousness (Leahey, 1992). As a result, there was not so much a revolutionary break from one theory to another, rather there was a change in focus due to social changes of that time. Therefore, a behaviourist revolution did not occur because: (a) mentalism did not contain agreed upon fundamental foundations of psychology, therefore it could not be considered a normal science or paradigm; (b) behaviourism did not demonstrate a rejection of mentalism due to an anomaly, so much as it gradually evolved to address the changes in psychology; and (c) behaviourism did not seem to take root worldwide as a revolution in psychology, it was more of an American shift in perspectives (Leahey, 1992 & Paylor, 2010).

Behaviourism

Behaviourism continued to be the dominant perspective in psychology until the 1950's. Though the study of behaviour was now the focus of psychology, the fundamental foundations of psychology were still being disputed; therefore, it remained in the pre-paradigm stage (Leahey, 1992). As behaviourism progressed, questions arose of how animal and human behaviour differed, how cognitive processes (consciousness) influenced behaviour, artificial intelligence (computers) was introduced, and other society changes took place. Gradually, a change in perspective transpired from behaviourism to cognitivism. However, a cognitivism revolution did not occur because: (a) behaviourism could not be considered a paradigm as it did not contain agreed upon fundamental foundations of psychology; (b) cognitivism did not demonstrate a rejection of behaviourism due to an anomaly, so much as it gradually evolved to address the

changes in psychology and society; and (c) the shift to cognitivism perspective could not be considered a worldwide revolution because behaviourism had not established itself internationally prior hand (Leahey, 1992).

Coexistence of Behaviourism and Cognitivism Today

Since then, cognitivism has replaced behaviourism as the dominant force in psychology in the understanding of human behaviour and mental functioning. However, behaviourism has not been completely replaced or dismissed as a perspective. Instead, the approaches continue to coexist as two differing perspectives in studying and addressing human behaviour and mental processes (Leahey, 1992). As Friman, Allen, Kerwin, and Larzeler (1993) found, while there was an increase in citations in journals in cognitive psychology between 1979 and 1988, a corresponding decrease in behavioural journals did not occur. This suggests that behaviourism was not completely displaced or denounced by cognitivism and thus, a revolution did not occur.

Overall, the early acceptance and existence of multiple theories and views of human behaviour, learning, and consciousness seems to have set the direction of school psychology as a pre-paradigmatic science. As Benjamin and Baker (2004) note, the field of school psychology is surprisingly similar today as it was 100 years ago. While theories and methods have changed, multiple theories continue to coexist alongside one another and all have the common goal of trying to improve understanding of children and their learning environment (Benjamin & Baker, 2004).

Pre-paradigmatic Views of Intelligence

The last area that is especially relevant to school psychology that provides support for the view that it is in the pre-paradigm stage, is the area of intelligence. Perspectives regarding the influence of biological and environmental factors on human intelligence have swung back and

forth throughout time. From the mid to late 1800's through to the early 1900's, opinions rested mainly within the biological camp. Stanley Hall's recapitulation theory was filled with biological determinism, indicating that genetics was a more significant determining factor than environment on one's intelligence (Benjamin & Baker, 2004). By 1903, Hall was acknowledged as a leader of the child centered philosophy of education, which emphasized the need for schools to adjust their curriculum to the needs and inherent nature of children (Benjamin & Baker, 2004). Henry Goddard, Lewis Terman, and Arnold Gesell (all students of Hall) continued to embrace a hereditarian view of intelligence, believing that intelligence was fixed (Benjamin & Baker, 2004). While Goddard utilized intelligence tests in the identification and classification of the mentally retarded and researched genetic transmission (Benjamin & Baker, 2004), Terman researched genetic studies of genius and determined that intelligence was hereditary as well (Benjamin & Baker, 2004).

However, while Arnold Gesell took a hereditarian view, he believed that environment also played a factor in one's intelligence. Gesell believed that children would progress through an orderly sequence of development if given a normal environment, (Benjamin & Baker, 2004). Similar to Gesell, Lightner Witmer believed that intelligence was fixed, but maintained that environmental influences, such as schooling and parenting, could advance or retard the expression of intelligence (Benjamin & Baker, 2004). Therefore, during this time period, there seemed to be two slightly differing perspectives on what factors influenced intelligence.

Perspectives on the dominate factors influencing intelligence have continued to shift from the 1920's to today. In 1994, Herrnstein and Murray theorized in their book, *The Bell Curve: Intelligence and Class Structure in American Life*, that race has a high influence on one's intelligence (Massey, 1995). Though there are several issues that are raised in their book, the

main controversy is the author's opinion that heritability in the differences between races is largely due to genetic factors. It was of the author's opinion that intelligence is fixed, and that environmental influences such as education and parenting have little influence on intelligence (Massey, 1995). However, opposing views have stated that environmental and social factors may play a significant role in the expression of intelligence and also note the potential biases inherent in intelligence tests (Massey, 1995).

Throughout history, there have been differing views on biological and environmental influences on intelligence; sometimes one perspective is dominant over another, sometimes there is a combination of the two views, and often both views are present at the same time. Therefore, perspectives on the factors that influence intelligence provide further support for the pre-paradigmatic nature of school psychology.

Conclusion

According to Kuhn's theory, school psychology would be considered to be in the pre-paradigm stage (Petersen, 2007). School psychology applies principles of both clinical and educational psychology to the diagnosis and programming of children's and adolescent's learning and behavioural needs; however, there is actually no central approach which is solely shared by the entire psychology community (Henriques, 2004). Instead, there is a collection of different theoretical ideas that centre on a variety of perspectives. As Fagan and Wise (2007) indicated, the domain of school psychology is too diverse and complex to be effectively defined by a single paradigm and therefore, it needs to include a variety of perspectives.

As we demonstrated, throughout the history of school psychology there has been more of a gradual change in dominance of the theoretical ideas and perspectives and not a complete obliteration of a perspective due to acceptance of another (Paylor, 2010). The theoretical

structures, ideas, and perspectives usually continue to coexist together. There does not seem to have been one internationally accepted perspective, theoretical structure, or idea within school psychology either. Therefore, school psychology would be considered a pre-paradigm.

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