

Contemporary Systems Psychology and Integrated Approaches to School and Clinical Service Delivery: Reincarnations of Lightner Witmer's “Psychological Clinic”

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Abstract

Lightner Witmer is often credited as the founding father of “clinical psychology” largely due to his formation of the first psychological clinic in 1896, followed by the creation of the first periodical dedicated to psychological practice a decade later. An analysis of Witmer’s approach to treatment will reveal that he envisioned an integrated discipline, one that was unified yet multidisciplinary and based upon a systemic understanding of the developing person. This approach was intended to blend aspects of psychology with medicine and pedagogy in order to provide comprehensive services and best ameliorate various psychophysiological conditions. Three main occurrences contributed to the marginalization of Witmer’s approach from clinical psychology: the rise of the psychotherapeutics and psychoanalysis movement, Witmer’s alienation from the mainstream American psychological community, and the emergence of an independent school psychology. Today, new research, theory, and training models are pushing applied psychology towards a unified, multidisciplinary perspective. A historical comparison will reveal that these developments are not unlike Witmer’s original vision.

Keywords: Lightner Witmer, School Psychology, History of Psychology, Multidisciplinary, Service Integration

When discussing the origins of psychological practice, few scholars would omit the historical founding of the first Psychological Clinic by Lightner Witmer in 1896 (Resnick, 1997). Around the turn of the 20th century, Witmer and a multidisciplinary team of physicians, educators, and psychologists from the University of Pennsylvania were providing services to children who were struggling in the educational system and other contexts (Witmer, 1907). After a decade of science, practice, and advocacy, Witmer’s work had sufficiently grown in support and popularity, resulting in his decision to form the first journal devoted to psychological practice. This periodical was appropriately dubbed the *Psychological Clinic* (Witmer, 1907). The versatile use of this term is an exemplification of the multifaceted and integrated nature of Witmer’s approach, which he called “clinical psychology” (Witmer, 1907, p. 9). Unfortunately, even though these formative events are over a century in the past, historians of psychology have indicated that many psychologists know very little of Witmer’s work and his approach to applied psychology (Benjamin, 1996). Moreover, it has been suggested that the clinical methods used today are not reflective of Witmer’s approach (Routh, 1996). A historical examination of Witmer’s Psychological Clinic – both as an institution and as a discussion forum of science and practice – will reveal that Witmer never intended for clinical psychology to become segregated from other helping professions, particularly medicine and school psychology. These developments are partially attributable to: (a) the psychotherapeutics and psychoanalysis movement; (b) Witmer’s personal alienation from the greater psychological community in America; and (c) the rise of an independent school psychology.

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Today, both clinical and school psychologies are becoming better integrated in a comprehensive health system of treatment and care (Benjamin, 2005; Nastasi, 2000). However, as defined by Witmer, clinical psychology was always intended to be a holistic treatment enterprise, where scientist-clinicians collaborated and provided a new approach to the amelioration of many psycho-physiological conditions, integrating traditional medical and pedagogical approaches with psychological science. Moreover, this psychology was intended to be a self-correcting enterprise, combining the application and evaluation of psychological methods of treatment, constantly improving the manner in which these services were provided. Indeed, Witmer envisioned a unified yet multifaceted discipline that possessed many progressive and innovative ideas that were lost or ignored over the course of the 20th century (Routh, 1996). These ideas have re-emerged in many new and improved forms including systems theories of child development (e.g., Bronfenbrenner, 2005; Lerner, 2006) and service utilization (Browne, Verticchio, Shlonsky, Thabane, Hoch, & Byrne, 2010), integrated service delivery approaches (Browne, Roberts, Gafni, Byrne, Kertyzia, & Loney, 2004; Burchard, Atkins, & Burchard, 1996) and even training models, most notably in the School and Clinical Child Psychology training model (Geva, Wiener, Peterson-Badali, & Link, 2003). The current paper will examine Witmer's early work in relation to the historical discontinuity in the practice of psychology. Recommendations will be provided to support the growing body of literature that integrates education, clinical psychology, school psychology, developmental psychology, and health systems approaches.

Before continuing further, a few definitions will be laid out for the purposes of semantic organization. First, when referring to *systems psychology*, we are describing the collective theoretical, scientific, and applied work of psychologists who seek to understand and improve human psychological functioning through the application of systemic organizing principles (namely, that the individual is best understood by examining the *relationships* among the constituent parts of the individual and their context, rather than these parts as isolated units).

Next, a historical distinction must be made between *school* and *clinical* psychology for the purposes of this paper. Differences here refer both to the location of practice (i.e., a school setting versus a hospital, clinic, or private practice) and the content of assessment and intervention. It has been our experience that the school psychologist is often mistaken for a "tester" who is primarily concerned with psychoeducational assessment. Such assessments often include an evaluation of social-emotional and behavioral problems inasmuch as they impact a child's ability to succeed in the classroom. Consultation or brief counseling take place, but psychotherapy remains the domain of the clinical psychologist, while environmental restructuring is the role of the social worker, and educational remediation the role of the educator. Though we are not arguing against specialization, a novel re-visitation of Witmer's work will reveal that both Witmer and contemporary systemic thinking calls for a more integrated relationship between school and clinical approaches, along with other service models, within the practitioner. Finally, when we speak of *service integration*, we are referring to (a) the strategic alliance of comprehensive health and psychological treatment and prevention services, (b) occurring across service provider disciplines and agencies at different levels of care, (c) into a unitary and individualized service program for individuals and families.

Witmer and the Psychological Clinic

In 1867, Lightner Witmer was born in Philadelphia, Pennsylvania, to parents David and Katherine (McReynolds, 1997). Education was very important in the Witmer home. Consistent with the collective optimism and pride following the Union victory in the American Civil War, David, a pharmacist, demanded the best opportunities for his children (Thomas, 2009). Despite the family's modest income, Witmer, the eldest of four siblings, attended the prestigious Episcopal Academy of Pennsylvania (McReynolds, 1997). In 1884, Witmer enrolled in undergraduate studies at the University of Pennsylvania, beginning as an art major though later switching to finance and economics (Thomas, 2009). After completing his baccalaureate, Witmer postponed his graduate studies to teach English and History for two years at a boys rugby academy (McReynolds, 1997). In 1889, Witmer began graduate studies at the University of Pennsylvania, first in philosophy, then in political science, and finally in psychology under James McKeen Cattell, who was in the process of developing the experimental psychology lab. It should be noted that Witmer continued to teach students while enrolled in graduate school, a decision which likely influenced his pedagogical approach to psychological treatment (Thomas, 2009). However, in 1891, Cattell moved to Columbia University. Witmer, now without a supervisor, finished his PhD under Wilhelm Wundt in Germany, where he was encouraged to study visual forms rather than individual differences, as he had originally planned (McReynolds, 1997). His dissent for the Wundtian nomothetic approach to psychological study, influenced by the time he spent with Cattell, would be reflected in his ideographic approach to treatment (McReynolds, 1997). In 1892, at the age of 25, Witmer returned from Germany and took charge of the position that was vacated by Cattell, becoming head of the psychological laboratory at the University of Pennsylvania (McReynolds, 1997).

The *Psychological Clinic* was originally a system of practice that was conducted in Witmer's laboratory and funded by the University of Pennsylvania, though private sources of funding would also emerge in later years (McReynolds, 1997). The first case occurred in 1896 when a Philadelphia teacher, Miss Margaret T. Maguire,

became concerned in response to a student's inability to develop spelling proficiency (Witmer, 1907). Also studying psychology at the University of Pennsylvania, Miss Maguire astutely reasoned that someone in the laboratory, who possessed a thorough understanding of human mental functions, should be able to identify the causes of this disability and provide some guidance (Benjamin, 1996). This supposition fit incredibly well with Witmer's paradigm, who had already conducted extensive work in pedagogical remediation while working as an instructor (Witmer, 1907). The child, identified under the pseudonym "Charles Gilman", was successfully treated and went on to achieve a satisfactory level of academic and occupational functioning (Routh, 1996). Contemporary scholars (McReynolds, 1997) and Witmer himself (1907) have marked this case as the unofficial beginning of Clinical Psychology.

As word spread, parents, teachers and school administrators from greater Philadelphia began to contact the clinic due to concerns regarding children's "inability to progress in school work" and unresponsiveness to discipline, which Witmer referred to as "moral defect" (Witmer, 1907, p. 1). In light of increasing case complexity, Witmer quickly expanded his approach to include the practice of medicine, whereby pedagogical and psychological approaches were simultaneously employed in conjunction with a traditional medical model during the assessment and treatment processes. Witmer's practice was also ecological. People from different levels of the child's context, including teachers, parents, and administrators, collaborated with physicians and the new helping psychologists to provide services (Watson, 1956). This is exemplified by Witmer's account of a typical case (1907): based on the recommendation of a school superintendent, parents brought their 10 year old son to the clinic. He appeared to be completely illiterate. Witmer first employed his team of physicians to determine if any fundamental medical anomalies were to blame. A family history was taken, ruling out hereditary grounds for the problem. Then the neurologist, Dr. William G. Spiller, ensured the absence of general "mental degeneracy and of physical defect" (p. 1). Following this, oculist Dr. William C. Posey examined the boy's vision, only finding a mild astigmatism which was corrected. Finally, an ear, nose and throat specialist, Dr. George C. Stout, checked for enlarged adenoids and provided a clean bill of health. Witmer's team also included prominent Philadelphia physician and writer Dr. Silas Weir Mitchell who helped with examinations. Once other causes for the impairment were ruled out, Witmer would conduct psychological testing. Also, in collaboration with the child's teachers, direct instruction was employed in an attempt to ameliorate the deficit while permitting conclusions to be drawn surrounding the child's intellectual capacities (Witmer, 1907). State-of-the-art psychometric assessment technologies were used, including the Binet Scale along with the Witmer Form Board and Witmer Cylinders, the latter two being modifications of Seguin's and Montessori's measures, respectively (Routh, 1996). In addition to direct remediation, treatment focused on environmental restructuring in order to create behavior change (McReynolds, 1997). Though the above description may sound standardized, Witmer's approach, which is comprehensive even by today's standards, was ideographic and responsive to the unique needs of individual children (McReynolds, 1997; Thomas, 2009).

Ten years after the original case, Witmer formed a journal called the *Psychological Clinic*, providing a forum in which proponents of the "clinical" approach could disseminate their case studies and evaluate the effectiveness of various treatment modalities for certain case presentations (Witmer, 1907). Witmer noted his reticence in forming the periodical, waiting until a significant following and rigorous methodology had emerged before formally announcing the viability of this approach on a large scale (Witmer, 1907). He may have also been discouraged by the questionable reception of his controversial, perhaps premature, account of clinical psychology when addressing the American Psychological Association in 1896 (Thomas, 2009). Nevertheless, Witmer's persistence succeeded, resulting in the formation of a discipline that was based on the application of systematic and scientific methods for helping persons overcome psycho-physiological dysfunction. Although Witmer called his approach Clinical Psychology, his methodology would be omitted from the repertoires of later practitioners who identified themselves as "clinical". By and large, the methods were modified and taken up in a sub-discipline known as "school psychology" (Fagan, 1996). Before discussing this development, however, the innovative merits of Witmer's approach will be outlined.

Foundations of a New Discipline

Witmer's application of psychological principles to the helping enterprise has been described as "ahead of its time" even though there were, of course, already a variety of historical approaches for helping people with mental problems (Thomas, 2009). The novelty of Witmer's approach lies in the way he uniquely synthesized and integrated the strengths of multiple professions and areas of scholarship. During the 18th and 19th centuries, treatment of the mentally ill largely took place in lunatic asylums under the supervision of medical professionals (Benjamin, 2005). Witmer's approach was influenced by progressive thinkers from this era, including Jacob Rodrigues Pereira (1715-1780), who taught language to the deaf, and Philippe Pinel (1745-1826), who fought for institutional reform and moral treatment of psychiatric patients. Witmer (1907) also drew upon themes from Jean-Jacques Rousseau's (1712-1778) commentaries on the importance of pedagogy in promoting civilized society and social responsibility.

In this respect, Witmer's work was characterized by the marriage of traditions of sociology, pedagogy, and, of course, the philosophical schools of psychological thought in which Witmer was trained, including American Functionalism. Additionally, Witmer (1907) indicated that his vision of clinical psychology was closely aligned with medicine and psychiatry due to its emphasis on treatment or intervention. As mentioned, his approach involved a "conjoint medical *and* psychological examination" of a patient, followed by "a diagnosis of the child's mental *and* physical condition and the recommendation of appropriate medical *and* pedagogical treatment" (emphasis added, p. 1). Witmer (1907) made it clear that the focus of the psychologist is on the welfare of the individual child. However, a dedication to the advancement of science through detailed case analysis attempted to ensure that this happened effectively and on a large scale.

Witmer's empirical evaluation of treatments would obviously not meet today's scientific and empirical standards for evidence-based practice (e.g., Kazdin, 2002), as his journal published mainly case reports and descriptions of individual treatment programs (Benjamin, 1996; Routh, 1996). Despite this, the forming of the *Psychological Clinic* periodical indicates Witmer's emphasis on having informed and evidence based treatments. Additionally, his theoretical approach to treatment is remarkably consistent with current "systems models" of human development, namely, Developmental Systems Theory (DST; Lerner, 2006), Ecological Systems Theory (Bronfenbrenner, 2005) and Dynamic Systems Theory (Fogel, 2011). Today, these principles have been applied to ecologically valid methods of assessment and treatment, including Developmental-Systems Assessment (Mash & Hunsley, 2007), Multisystemic Therapy (e.g., Sheidow, Henggeler, Schoenwald, 2003) and the Positive Parenting Program (Sanders, 2012). First and foremost, these systems theories fall under the banner of *Relational Meta-theory*, whereby atomism, reductionism, and artificial splits between various levels of human and social organization are replaced by an emphasis on the relationships of component parts into an irreducible whole (Overton, 2006). While Witmer never formed a coherent theory of development, his assumptions on the nature of human ontogenesis are implicit in his approach to treatment. Most important is the focus on multiple levels of organization when conceptualizing the etiology, diagnosis, and treatment of any particular problem (Witmer, 1907). The majority of patients at the Psychological Clinic were children with learning difficulties. However, the exclusive relegation of Witmer's approach to an educational "school psychology" is not consistent with history (Fagan, 1996). In fact, Witmer formally opposed the sectioning of an exclusive state association for school psychology (Fagan, 1996). In line with this, practitioners at the psychological clinic would apply their multidisciplinary assessment and treatment programs to patients, ranging from early childhood to adulthood, who suffered from a variety of ailments (Witmer, 1907). Parents were also included in assessments and treatment regimens. In a review of records from Witmer's clinic, McReynolds (1997) notes that referrals were originally provided almost exclusively by school personnel, though as the clinic's popularity grew, they would eventually come from a variety of sources including physicians, probation officers, judges, and other service providers. Records indicate that patients with epilepsy, brain trauma, Down's syndrome, and "nervousness" were assessed and treated, in addition to children who were "morally delinquent", "incorrigible" or who had "uncontrollable tempers" (p. 238). It should be noted that Witmer also maintained a commitment to experimental psychology, publishing a laboratory manual and collaborating with E.B. Titchener. Such a diversified yet integrated orientation suggests that Witmer did not intend clinical psychology to be "independent" of medicine and education as some have suggested (e.g., McReynolds, 1997, p. 237). Rather, his approach was to be a comprehensive and holistic system of health and social service delivery that complimented and synthesized existing modalities.

Witmer's approach was also consistent with the systemic premise that individual development is the product of real-time interactions between various levels of individual organization. As proffered by Dynamic Systems Theory, these dynamic interactions occur on the micro-scale and are responsible for maintaining relatively enduring macro-scale psychobiological phenomena (Fogel, 2011). For example, Witmer acknowledged that sensory physiology can interact with cognitive aptitude, influencing an individual's ability to process and learn information in scholastic, tutorial or occupational settings, thereby determining their developmental trajectory as a learner or employee. Equally important for Witmer was the nature in which individuals interacted with their contexts in a reciprocal fashion, thereby producing developmental outcomes. Today, these sentiments can be seen in the recognized concepts of proximal processes (Bronfenbrenner, 2005), person-context interactions (Lerner, 2006), and child-environment transactions (Sameroff, 2009). The centrality of the person-context system for Witmer is illustrated by his emphasis on environmental restructuring when outlining treatment programs (McReynolds, 1997). Also consistent with systemic thinking (and contemporary neuroscience), Witmer was a believer in the relative plasticity of psychological functioning and held an optimistic view concerning the nature of humanity. Despite his employment of medical models, he did not view his clients as "pathological", but simply saw them as deviating from the average due to their functioning at a lower or "retarded" stage of development (Witmer, 1907, p. 9). It was the clinical psychologist's role to help the child obtain an optimal level of functioning and overcome any retardation.

This positive orientation is mirrored today in the contemporary “developmental asset building” approach (Lerner & Benson, 2002). Despite this positive emphasis, however, the assessments at the clinic did not fall victim to the “happy face syndrome”, whereby asset building approaches are employed to the exclusion of necessary deficit reduction and remediation (Lyons, 2004). In fact, Witmer’s approach identified weaknesses during the assessment so that treatment could simultaneously reduce deficits and promote strengths. When viewed in this light, Witmer’s approach to psychological practice seems remarkably progressive, consistent with non-reductionist accounts of human psychological functioning and comprehensive models of intervention. However, a number of occurrences would cause his work to become compartmentalized from mainstream clinical psychology.

The Marginalization of Witmer’s Approach

Today, Witmer’s role in clinical psychology is often viewed through the lens of advocacy and institution building rather than theoretical contribution to practice (McReynolds, 1997). The marginalization of Witmer’s methods can be attributed to: (a) the rise of psychotherapeutics and psychoanalysis, (b) personal factors that may have alienated him from the American psychological community, and (c) the emergence of a unique school psychology.

Taylor (2000) suggested that clinical psychology, as defined by Witmer, and psychotherapeutics, which would develop into psychoanalysis, emerged separately and independently. Witmer’s program was more heavily influenced by the scientific laboratory techniques of Germany. On the other hand, the psychotherapeutics movement was influenced by physiological psychology in addition to neurology and psychical research, including the study of mediums, telepathy, and clairvoyance (Taylor, 2000). The rise to prominence of psychotherapy and psychoanalytic theory in the early part of the twentieth century spawned one of the greatest challenges to the basic tenets of Witmer’s holistic, person-centered approach to care. Though the attack was by no means directed at Witmer himself, the problem came on two levels: first was widespread acceptance of the fascinating (though notoriously infalsifiable) theories of Sigmund Freud and Carl Jung which, by the 1930s, took a foothold in mainstream psychology by offering a compelling and seemingly unified theory of child development (Cairns & Cairns, 2006). Some proponents of psychoanalytic theory even boasted of “universal validity” and being “granted the right of judgment” towards other domains of psychological specialty (Freud, 1931, p. 561). The intended monopolization of psychological theory and practice by Freudian and post-Freudian movements left little room for theoretical dissent, especially for underdeveloped or implied theories like those of Witmer. Indeed, despite unsuccessful attempts to experimentally authenticate the purported hallmarks of psychoanalytic theory (e.g., fixation, projection, etc.; see Sears, 1944), the Freudian movement continued to permeate both theory and practice through the middle part of the twentieth century (Cairns & Cairns, 2006). Though Witmer himself did not have a well-announced theory of child development, his affinity for empiricism left him at odds with traditional psychoanalysts. For example, in Volume Two of *The Psychological Clinic*, Witmer attacked Elwood Worcester and the Emmanualism movement along with Hugo Munsterberg’s hypnotic treatment of alcoholism due to poor application of the scientific method and for blending spirituality with psychology (Thomas, 2009). In an attempt to further disentangle basic philosophy and applied psychology, he personally criticized William James’ interest in mysticism and the occult, calling him a “litterateur” rather than a psychologist (McReynolds, 1997, p. 145). James was not concerned by the attack, but Munsterberg called for Witmer’s removal from the American Psychological Association, a request that was never fulfilled (Thomas, 2009). In sum, Witmer’s rejection of the highly influential psychoanalytical framework appears to have ostracized him from the psychology community, perhaps thwarting any effort to conjure a theory of development and practice that could gain general recognition.

A second set of challenges posed to Witmer by the psychoanalytic enterprise involved the fundamental alterations it made to the landscape of clinical psychology in the United States. Heavily endorsed by G. Stanley Hall in the early 1900s, the popularity of psychoanalysis had spread to America when Freud and Jung were invited to speak at Clark University in Massachusetts in 1909. However, by the 1930s there was a decisive split of psychoanalysts into an array of heterogeneous groups, each with varying ideas around the importance of key psychoanalytical concepts (Monroe, 1955). At first blush this may appear to have strengthened the opportunity for a Witmerian upsurge, but the fractured enterprise presented another layer of complexity that threatened psychological practice. Specifically, Freudian descendants in America made it a requirement that only physicians (i.e., those with medical degrees) could be trained in and practice psychoanalysis (see Ekstrom, 2002). The instantiation of a medically-based, Newtonian model into the most prominent psychological orientation of the time undercut the credibility of non-medical practitioners, including those who employed more systemic therapeutic approaches (Costello & Costello, 1992). The exclusionary nature of psychoanalysis in the United States contrasted with the models that originated in Vienna (Schwartz, 1999), but even Freud himself became an advocate for the medical framework in America (Freud, 1931). The schism between American psychoanalysts and the international community rendered the medically-based approach as a leading form of psychological treatment in the United States

(Ekstrom, 2002). Witmer, who diametrically opposed Freudian concepts, would inevitably fail to impact the psychoanalytically-dominated field of psychology. Indeed, Witmer's obituary suggested that his "aggressively honest and critical demeanour", coupled with his rejection of the extremely influential "analytically oriented" psychology, would cause his approach to be avoided by practitioners who considered themselves "clinical" psychologists (Watson, 1956, p. 680).

Paralleling the removal of his methods from the clinical realm was the uptake of his psycho-educational methods in the discipline of "school psychology". In addition to Witmer's contributions, this approach traces many of its origins back to G. Stanley Hall's work on individual differences in children and Alfred Binet's contributions to psychological testing (we would like to thank an anonymous peer reviewer for input on this point). In the early 1890s, Hall, unsatisfied with the use of single case studies on children, undertook a program of questionnaire studies on child development. Hall's contributions are considered to have been the impetus for the Child Study Movement, which Hall himself described as, "... devoted to the collection, diffusion, and increase of the scientific knowledge of childhood" (Hall, 1910, p. 160). Witmer's orientation was primarily idiographic and, as such, was focused on individual children. Hall's orientation, on the other hand, was nomothetic; he was focused on the context within which children developed, with the aim of changing the developmental system and child pedagogy. As Fagan described, "What Hall studied normatively, Witmer tried to correct individually" (Fagan, 1992, p. 238). It was the carrying of the Child Study Movement into the realm of the atypical child that characterized the role of the school psychologist (Fagan, 1992). Indeed, in 1915, a student of G. Stanley Hall named Arnold Gesell became the first practitioner with the title of "school psychologist" in the United States (Braden, Di Marino-Linnen, & Good, 2001). Gesell's role was to assess children and provide recommendations for special treatment. Particularly instrumental to identifying children as requiring special education was Alfred Binet's development of mental abilities testing. He published what is considered to be the first modern intelligence test in 1905, the Binet-Simon scale, allowing the measurement of both normative functioning as well as degrees of mental retardation. In addition to providing a measure that permitted the identification of children with deficiencies, the scale provided a benchmark from which other measures of cognitive ability could be evaluated (French, 1987).

Although clinical and school psychologies have never been completely segregated in practice, many have argued that the treatment of psychopathology and socio-emotional maladjustment has historically been the domain of clinical psychologists, whereas the assessment and amelioration of problems pertaining to scholastic learning has concerned the practice of school psychology (Nastasi, 2000). Mental ability tests, although critical in identifying children who required special education, kept school psychologists in the role of "testers" for much of the 20th century (Sarason, 1976). Indeed, a paradox has persisted: time allocations have been primarily dedicated to assessment in order to meet special education requirements of school districts; however, many acknowledge that school psychologists should continue to expand their roles into consultation, counseling, and therapy in order to provide best services to children in need (Fagan, 2002). Today, there is an accumulating body of evidence articulating the bidirectional relationship between children's learning and mental health, revealing a continuing need to bridge the gap between school and clinical psychology (Adelman & Taylor, 1999; Fagan, 2002; Nastasi, 2000). Consistent with Witmer's century-old vision of a unified psychological practice, the unreasonable and artificial nature of this dichotomy has begun to reach critical mass.

School and Clinical Psychology Today: Partners in Integrated Service Delivery

In a review of the history of clinical psychology, Benjamin (2005) notes that Witmer remains influential *despite* the fact that clinical psychological practice today does not mirror his methods. Although this may be true for some clinicians who are principally involved in adult psychotherapy, we must note that one of Witmer's fundamental principles *has* regained favour: successful assessment and treatment necessitates the simultaneous and integrative examination of functional domains that are organized under medical, socioemotional, and academic (occupational) levels of organization. Despite a misinterpretation of Witmer's vision for a unified "clinical" approach, Benjamin (2005) cogently argues that the continued progression of clinical psychology necessitates the development of multidisciplinary solutions to the world's most pressing issues such as disease, mental illness, healthcare, education, income inequality, poverty, pollution, crime, child abuse, and conflict. In a similar vein, psychological practitioners who have operated in academic settings are now explicit about the importance of addressing multifaceted and complex problems in their clients (Nastasi, 2000). Like the "clinical" orientation, the "school" psychologist is in a unique position to address the issues of today, providing comprehensive healthcare in a multidisciplinary and contextually sensitive fashion through the application of direct services and consultation (Nastasi, 2000). Viewed in this light, it appears that the collective understanding in both clinical and school psychology has arrived at the same conclusion, one not unlike Witmer's orientation 100 years ago. Though there have been many subsequent developments in psychology that Witmer did not anticipate (Routh, 1996), Witmer's initial emphasis on the treatment of an irreducible person from a multidisciplinary framework remains true.

Of course, one of the defining features of psychological practice is its inexplicable link to research, science, and regulated training. Witmer (1907) rejected all artificial splits between “basic” and “applied” research, suggesting that the value of *all* science is its ability to advance the progression of humanity. Beginning in 1897, Witmer and his colleagues promoted the growth of his method by overhauling the psychology curriculum at the University of Pennsylvania. The program included experimental and physiological psychology, child psychology, and a practical component demonstrating the clinical method in action (Witmer, 1907). Witmer’s training program, which represented a combination of research and practice, was expanded and solidified at the historical 1949 conference in Boulder, Colorado. This meeting, run by the American Psychological Association and funded by the newly formed National Institute of Mental Health, marks the formal adoption of the “scientist-practitioner model” by clinical, school, and counseling psychology (Benjamin, 2005). Sixty years have passed since the Boulder conference and the training model remains influential. However, advancements in developmental theory, research, and practice have led to the formation of related, yet augmented models that are well suited to guide psychologists and other integrated service providers into the future. Three sub-models will be highlighted that can be synthesized into a unified approach of *systems psychology and integrated service provision*: (1) the service integration approach in healthcare, (2) the family-standpoint of investigation in developmental science, and (3) the School and Clinical Child Psychology (SCCP) training model.

The Service Integration Approach

Witmer is one the first integrated health service providers in modern history. One hundred years before the principles were formally outlined by prominent developmental scientists (Cicchetti & Rogosch, 1996), Witmer’s program of treatment recognized that there can be multiple distinct causes to any single symptom or set of symptoms. Today, this is known as the principle of *multifinality* (Cicchetti & Rogosch, 1996). Commensurate with this, contemporary psychologists and health service providers articulate the importance of integrated care or integrated service provision. The idea is that treatment is most effective when the multiple sources of psychopathology, educational-occupational struggle, and other general medical conditions are addressed simultaneously. The most comprehensive model of integrated service delivery to date is Browne and colleagues’ conceptualization (2004) which is a tripartite model organizing integration on three axes (see Figure 1): (1) vertical axis – sectors to be integrated, where a sector refers to an area of care that is usually grouped together due to funding restrictions or historical developments; (2) horizontal axis – the types of service, that form a continuum of care ranging from universal (prevention), targeted (early intervention) and clinical (family development, support, remedial and therapeutic); and (3) oblique axis – funding sources, which may include public, private, and non-profit or voluntary. Based on Witmer’s aforementioned clinical approach, it is clear that he was an integrator of services (mainly across psychology, medicine and education), and provided supports via the psychological clinic at different levels of the continuum of care (i.e., severity). To date Witmer’s funding sources remain a topic of minimal discussion (see Routh, 1994, for a historical perspective on the early economics of clinical psychology).

The Family Standpoint of Investigation

The Family Standpoint of Investigation is a theoretical perspective integrating phenomena at child-level and health and social service-levels by examining their interconnections with family-level processes, and broader contextual risks, across development (Browne et al., 2010, see Figure 2). It most heavily draws upon Developmental Systems Theory (Lerner, 2006), but is consistent with all systems approaches in psychology (Bronfenbrenner, 2005; Fogel, 2011; Sameroff, 2010). Its main utility is in understanding the ways in which children, families and healthcare systems can become connected in a transactional and dynamic child-family-service system. It was generated in response to calls for theoretical frameworks and empirical research that examines developmental processes across multiple levels of social and individual organization (Overton, 2006). The framework was first explicated and demonstrated in the context of child welfare, where the relationships between risky family environments, child adjustment, and service utilization patterns (including education and child protection) were examined. Any constructs that are organized at child, family, and service levels are amenable to study using this framework, such as genetics, psychophysiology, emotions, behavior, cognition and academic functioning at the child level; parenting, sibling interaction, marital conflict, maternal depression, and other forms of economic and contextual risk at the family level; and utilization expenditures, service wait-lists, access to care, quality of care, and service integration at the service level. Again, it is understood that the child-family-service system is embedded in a broader school, community, and geo-political contexts characterized by variable levels of risk (and their own proximal processes) consistent with Ecological Systems Theory (Bronfenbrenner, 2005). Studies can be focused on within-level (e.g., child) or cross-level (e.g., child-family, or child-family-service) research questions (Cicchetti & Valentino, 2007). Also, the measurement of constructs at one level (e.g., service level) may take place from the vantage point of that level (e.g., medical records) or may be embodied within another level (e.g., parental perceptions of the quality of care that their child is receiving; Smart et al., in revision).

Moreover, constructs may be operationalized at a particular level of organization, measured at that level of organization, or both. For example, a researcher may be interested in the levels of maternal depression (a family-level construct) within different health maintenance organizations or healthcare networks (a service-level of measurement). Conversely, a researcher may be interested in the extent to which caregivers (a family-level of measurement) approve of the psychological and health services their families receive (a service-level construct). A researcher who is interested in parent perceptions of family functioning is both conceptualizing and measuring at the same level of analysis.

The main utility of the family standpoint of investigation is to encourage researchers to think about child, family, and health and social service research questions in a systemic fashion, thereby examining the complex relationships among the constituent parts of the child-family-service system, rather than the components in isolation. The family is a critical junction between child functioning and service levels, in particular, because (a) family and child functioning are reciprocally influential, where the afflictions of either level can detrimentally impact the other; (b) children and families with psychological problems use more educational, psychological and healthcare services, thereby costing more money; and (c) children with adjustment problems and who are at high risk navigate the school and clinical service systems with their families, not alone (Browne et al., 2010).

School and Clinical Child Psychology Training Model

The School and Clinical Child Psychology (SCCP) approach is a pedagogical model that provides theoretical and professional training in preparation for psychological work with children, adolescents, and families in school, mental health, private practice, and research settings (Geva et al., 2003). The program title includes the term “child psychology” due to its developmental emphasis, though adult training and research occurs as adults are key members of the child-family-service system. There several central tenets that differentiate this model from other psychological training programs: a) emphasis is placed on the extensive overlap of school and clinical orientations including ethics, development, psychopathology, assessment, interviewing, therapy, diagnosis, consultation, research, and evaluation; b) the program is a scientist-*scholar*-practitioner model, whereby broad general knowledge is encouraged outside of an individual’s areas of expertise in research and practice; c) attention is paid to normal and abnormal development, diversity, and contextual factors; and d) students are guided through the Master’s and PhD with mentorship from a primary advisor, though collaboration and clinical supervision from other faculty members also occurs. Not unlike Witmer’s paradigm, the most important characteristic of the model is the rejection of dualist splits between a child’s academic and psychosocial functioning (Geva et al., 2003). Students are educated in both medical models and systems perspectives, providing a well-informed and adaptable approach to research, practice, and scholarship.

In terms of psychoeducational and social-emotional assessment, students are trained in a variety of orientations including classical psychoeducational models, response to intervention, functional analysis, and most notably, developmental-systems assessment (Mash & Hunsley, 2007). The latter is defined as:

a range of deliberate assessment strategies for understanding both disturbed and non-disturbed children and their social systems, including families and peer groups. These strategies employ a flexible and ongoing process of hypothesis testing regarding the nature of the problem, its causes, and likely outcome in the absence of intervention, and the anticipated effects of various treatments. (Mash & Hunsley, 2007, p. 6).

The Witmerian approach is remarkably consistent with this statement. Indeed, like developmental systems, Witmer (1) argued for an idiographic approach; (2) focused on systemic, situational, and ecological influences; (3) was more concerned with cognition, behavior, and affects that were pertinent to presenting problems rather than latent causes; (4) sought information from assessment that would be directly informative to treatment (i.e., treatment planning and selecting treatment targets); (5) engaged in a multi-method, multi-informant type of assessment to understand situational stability versus variability; and (6) believed in an evidence-based and self-correcting enterprise, where assessment using response to intervention occurred within the context of a single assessment, and evaluation of effective strategies were disseminated and moved the field forward (Mash & Hunsley, 2007). Though Witmer would not have been engaging in psychotherapy as we know it, students in the SCCP model are exposed to most movements and schools in psychotherapy, and can receive extensive training in modalities that meet criteria for evidence-based practices (Kazdin & Weisz, 2011), including cognitive behavior therapy, contemporary psychodynamic psychotherapy, dialectical behavior therapy, multisystemic therapy, acceptance and commitment therapy, family therapy, play therapy, and mindfulness-based treatments.

A number of scientists and clinicians are conducting research that melds systems psychology, service integration perspectives, the family standpoint, and an integrated school and clinical psychology. Interestingly, these studies share a number of substantive and theoretical similarities with Witmer’s early vision. For example, Wade and colleagues have demonstrated that the same organizing principles underlying the etiology of psychopathology are applicable to the emergence of poor school readiness (Wade, Prime, Browne, & Jenkins,

2012). That is, the determinants of early academic success are small, multiple, probabilistic, and interact with one another across levels of organization in order to produce deleterious consequences. Similarly, Browne and colleagues (2010; 2011) are currently examining how patterns of child adjustment and health/social service expenditures (including educational resources) can be tied to a variety of constructs that operate at the family level, such as parental stress and family functioning. Browne concludes that the social importance of family-level constructs such as parental stress have been understated due to research that focuses solely on child- or family-level outcomes, ignoring the way in which affected persons operate in broader social, educational, healthcare, and economic contexts. In a similar vein, Wiener and colleagues have demonstrated how the correlates of hyperactivity-inattention operate across child, family, and social levels of analysis, including psychosocial and academic outcomes, school variables, peer factors, and family stressors in their conceptual framework (e.g., Rogers, Wiener, Marton, & Tannock, 2009). One study of children with complex disabilities and their families indicated that both service integration and child hyperactivity-inattention were independently associated with family functioning (Browne, Rokeach, Wiener, Hoch, in revision). Moreover, hyperactive children (and their parents) had the highest utilization expenditures at baseline, though these effects were ameliorated over the course of involvement with integrated mental health and medical services. Such research that examines the sequelae of adversity from a multidimensional framework is best situated to understand the phenomenon in question and provide fully informed treatment and policy recommendations. Moreover, it is important for such work to take a multicultural perspective. For example, Geva and colleagues (2000) have demonstrated the importance of culturally sensitive service delivery and developmental theory when working in school and clinical contexts. Cultural competence is becoming increasingly important in a global context characterized by urbanization, growing diversity, and increasing gaps between the rich and the poor.

Consistent with Witmer's approach to science and practice, these programs of study indicate that psychological variability in individuals is best understood by examining the influences and correlates of various physiological processes, personal histories, and societal forces in an integrative framework. These comprehensive or systems perspectives can be contrasted with reductionist explanations, including psychoanalysis, learning theory, behavioral genetics, or sociogenic models, that attempt to understand all psychological phenomena through a restricted spectrum of possible influences (Lerner, 2006).

General Recommendations for Science, Practice, and Training

Before concluding, several recommendations for science, practice, and training will be articulated based on the theoretical premises of systems psychology and integrated service delivery. None of these recommendations are necessarily new, in their own right, and other comprehensive sources are available in this area (Damon & Lerner, 2006; Gutkin & Reynolds, 2009; Rutter et al., 2008; Weiner, 2002). Many methods date back to Witmer, himself. However, they are being re-articulated for purposes of completeness in the present discussion and historical review. Also, it should be noted that the following recommendations are more pertinent to the way which science and practice are best conceptualized within the universe of developmental theory, as opposed to recommendations on specific methodological or intervention practices themselves. References are available on specific evidenced based treatments, as well (Barlow, 2008; Kazdin & Weisz, 2010).

First and foremost, theoretical frameworks and approaches to treatment should be based on the organizing principles of relational meta-theory (Overton, 2006; von Bertalanffy, 1968), whereby reductionist splits amongst the units of a system in question are avoided and, rather, the complex, reciprocal, and symbiotic relationships amongst the constituent parts are viewed as paramount. As described above, a number of prolific theories have been articulated in line with these organizing principles, with empirical evidence to boot. Also, treatments and intervention programs are becoming increasingly sensitive to ecological and cultural constraints, as is the case with multisystemic therapy, parent management training, and the positive parenting program. Moreover, theoreticians should continue to integrate additional levels of analysis to their research questions, measured across the lifecourse, thereby approximating the full range of antecedents and consequences that are centered around psychological maladjustment and human suffering. This has also been seen in practical applications for service delivery, both in and outside of clinical and school psychology, as is the case with the Service Integration perspective and the Wraparound Process.

It is imperative the empirical validation of these theories and treatment modalities are making use of state-of-the-art statistical techniques. In other words, mathematical models must be adequately complex and comprehensive in order to best approximate the realities postulated by the theoretical frameworks. Techniques may include analyses that permit the simultaneous testing of cumulative and indirect effects (e.g., mediated moderation and moderated mediation), effects at different levels of organization (multilevel modeling, dyadic data analysis, and social relations models), latent variable analyses including the identification of mixtures of homogenous subgroups of people (e.g., structural equation modeling, latent class/profile analysis), univariate longitudinal methods across

the micro (seconds) and macro (years) time scales (growth curve analysis, latent class growth analysis), multivariate longitudinal methods (growth mixture models, cross-lagged simultaneous equations), and the on-going integration of these models with behavioral genetic and other genetic designs in order to disentangle the effects of heredity and environments. Software packages capable of fitting such models are becoming increasingly available and user-friendly. Moreover, mathematical model-building approaches should be complimented by ideographic methods such as single-subject research designs (Homer et al., 2005).

In addition to the modeling itself, it is imperative that state-of-the-art measurement is taking place across levels of organization in order to best understand the phenomenon in question. This is true for both naturalistic and therapeutic effects, and the corresponding moderators, mediators, and consequences surrounding academic, occupational, cognitive, and social-emotional domains. In addition to traditional psychometric, academic, and observational measurement methods, such measures should include micro-level assessments from genetics, biology, physiology, endocrinology, and neurology. These often take the form of physiological indicators such as functional polymorphisms on candidate genes, hormones such as blood or salivary cortisol and oxytocin, epigenetic indicators such as DNA methylation and acetylation, and neural patterns based on neurological and neuro-imaging techniques, including EEG, fMRI, PET, and CT scans. Measurement should also be extended to macro-level assessments, traditionally used in fields of economics, epidemiology, geography, political science, demography, population health, and applied statistics. While biological markers present unique technological challenges and requirements, such macro-level measurement often requires data-linkage, information-access partnerships, and political cooperation. When possible, it is preferable to have (anonymous) individually linked data, including results from standardized educational testing, medical records, and other social service utilization patterns. Such paradigms permit researchers to ask questions based on naturalistic phenomena, and understand the consequences of naturally occurring interventions. The field of psychology is in a unique position to integrate such quantum and molar levels of human understanding within the experience of an integrated and conscious human organism. It is important that scientist-scholar-practitioners are being trained with competence in such domains, as is the case with the School and Clinical Child Psychology model.

Conclusion

The presented analysis of Witmer's clinical psychology reveals a remarkably advanced approach to science and practice, one that possesses many of the organizing principles of an integrated systems psychology and model of service delivery, today. Indeed, many of the recommendations proffered above were apparent in the work done at Witmer's Psychological Clinic at the University of Pennsylvania. Unfortunately, a variety of occurrences saw the emergence of relatively independent "clinical" and "school" streams of psychology. Over time these were increasingly separated from medicine, which has been similarly characterized by reductionism and dualist spits. As described above, the main reasons for the marginalization of Witmer's approach include (a) the rise of the psychoanalytics and psychotherapeutics movement, to which Witmer was adamantly opposed; (b) Witmer's corresponding alienation from the greater psychological community due to his outspoken opposition and tendencies for, perhaps, harsh criticism; and (c) the emergence of an independent school psychology, one that took on many of Witmer's pedagogical strategies but neglected to see the systemic thinking that was perhaps too implicit in his work.

As mentioned, the approach closest to Witmer has been traditionally employed by pedagogical psychologists, while clinical psychology has experienced its own independent evolution. Of course, school and clinical psychology today are a century more advanced than Witmer's orientation, reflective of the efforts of many other influential scientist-scholar-practitioners, statistical and technological advancements, and developments across various domains of science. However, even though the direct linkage is limited, it is reasonable to conclude that Witmer's clinical psychology was an ancestor of today's various "systems" approaches which reject the viability of any single grand mechanism of development or human psychology in favour of a more pragmatic understanding of people that is both nuanced yet holistic (Lerner, 2006). It would be misinformed to say that progress was not made during the years where grand theories of development dominated the landscapes of psychology departments. In fact, these theories remain influential today and provide interchangeable lenses through which researchers and practitioners can view any particular phenomena, all the while remaining faithful to particular meta-theoretical and systemic organizing principles. Nevertheless, it is important to note that the current systems movement is not completely unprecedented. A historical understanding of multidisciplinary and systemic thinking in applied psychology, and particularly the role of Lightner Witmer, can contribute to the continued development of an integrated discipline. Consistent with Witmer's vision over a century ago, the future of a unified psychology lies in the hands of scientist-scholar-practitioners who encourage the study and application of comprehensive and innovative methods of ameliorating human suffering and promoting positive growth. This is especially true of approaches that selectively apply systems thinking in conjunction with pedagogical, psychological, and medical treatment models, thereby providing the best integrated treatment services possible.

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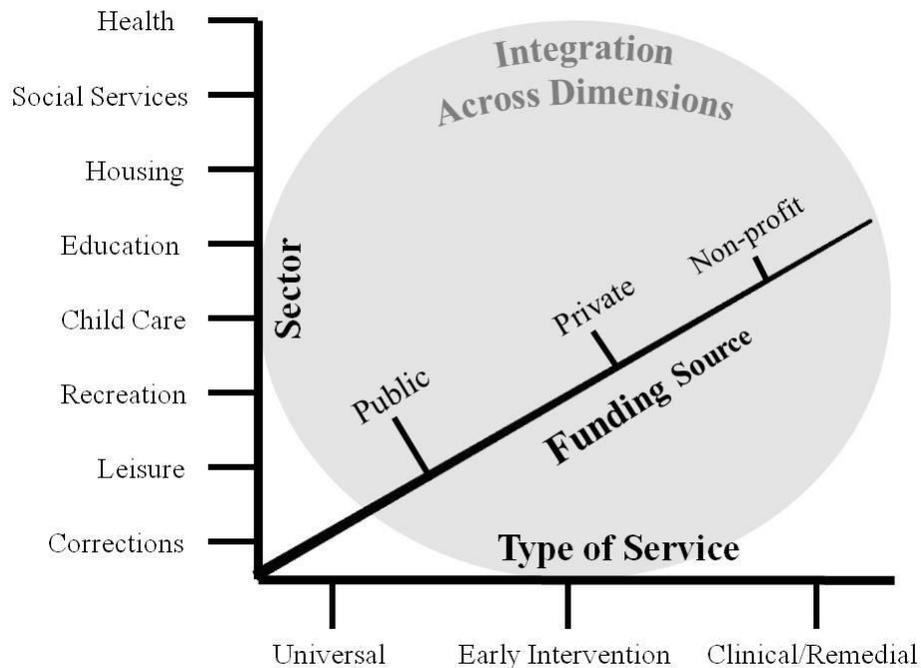


Figure 1. Graphical model illustrating the Tripartite Model of Service Integration, where integration occurs across service sector, service type, and funding sources (adapted from Browne and colleagues, 2004).

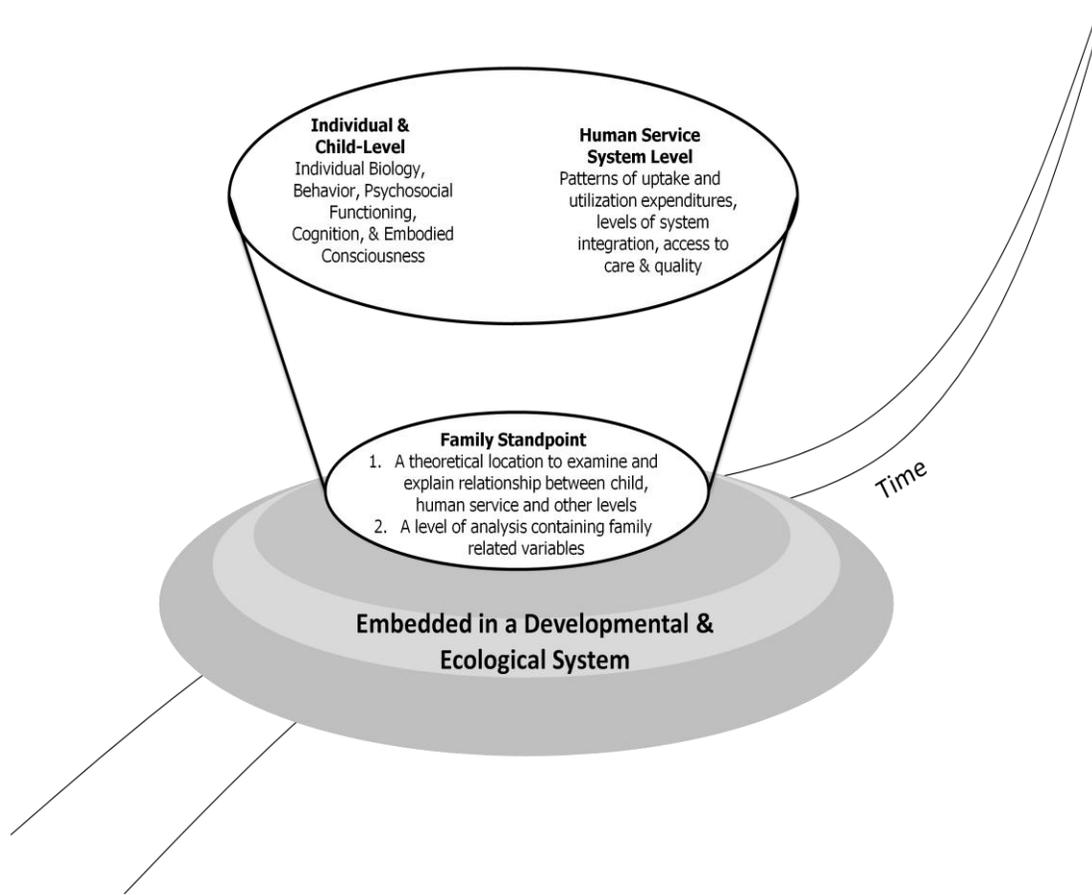


Figure 2. Graphical depiction of the Family Standpoint of Investigation, embedded in a developmental and ecological system over time (adapted from Browne and colleagues, 2010).