

What nature Has Fitted Them For: The Evolution of a Paradigm in Vocational Psychology

While being around for 95 years, the specialty of vocational psychology remains obscure to most psychologists. Vocational psychology, a specialty within applied psychology, is the scientific enterprise that conducts research to advance knowledge about vocational behavior, improve career interventions, and inform social policy about work issues. Vocational psychology's focus on the individual— fitting workers to work--- distinguishes it from organizational psychology's focus on work and from occupational sociology's focus on occupations, and counseling psychology's focus on career counseling. This paper surveys the development- historical, technical, and theoretical- of vocational psychology's main paradigm as a scientific field. It describes person-environment fit as the foundation of this science and it underlies a dependable vocational guidance aimed at helping individuals choose, prepare for, enter, and progress in satisfying work and assisting society to have a satisfying work force.

PRE-history

Schein in introduction to Organizational psychology asserts that specialties within applied psychology usually emerge at the prompting of some type of practitioner who is trying to solve some important problem. Could be teacher, manager, parent, coach. Although the fact is not always realized by the non-expert public, a science usually includes something very important besides its subject-matter; namely, its method or methods of handling this.” (Spearman, 1937, p. 38). The field originates with melding of this pressing problem with some conceptual model, theory, or research methods that can be used to study the problem. According to Schein, “When we have *both* a focus of interest and a way of studying it, we have the beginnings of a field.” (P. 1).

Vocational psychology's method is based in fit paradigm.

The questions that prompted emergence of vocational psychology were raised by social workers concerned about street children in America's new urban centers at the turn of the 20th century and the fate of immigrant to these cities. These problems arose because America was in the process of reorganizing its work, and making it necessary for workers to choose occupations and for society to decide how to assign people to those jobs.

The “second industrial revolution” (1871-1914) or second phase of the industrial revolution propelled by the wood or coal based steam power, accelerated industrial life. In the USA associated with electrical motors and internal combustion engines as well as scientific management and Taylor's concept of work design, and the Frank and Lillian Gilbreth's standardization and methods work produced a mass society, interchangeable parts, and mass market. Saw large number of transient urban workers pursuing industrial labor and large unemployment. This led to the growth of cities and related problems of 1900 questions dealt with urbanization 1910 ½ lived in cities for the first time
industrialization 1911 assembly line model T invent occupations

immigration - YMCAs and evils of the city

In the 19th century these were not really jobs, most people worked on farms and everybody did everything. In 20th century saw increase in the division of labor, society divided up among different individuals the tasks that need to be done and used organizations to rationally coordinate and manage these tasks to fulfill goals.

At turn of century we reorganized work into task-based jobs. This was social invention to package the work that needed doing. These packages of work were institutionalized as “jobs” organized by hierarchical bureaucracies. The job then became a distribution system for individual talents. During the 20th century the job, not the worker nor the customer became the focus of attention.

Morris Vitele (1932) asserted that the major change wrought by the transition from an agricultural to an industrial society was the substitution of uniformity for variety and of specialized tasks in a uniform sequence for choice of activity. So instead of the worker choosing and sequencing tasks, the way employers organized tasks required the selection of workers. By 1910 the old contract system of letting out work was being replaced by employees being hired to work for a company not just a boss. This led to personnel departments and employment clerks (Stead & Masincup, 1943).

Problem of Assigning workers to work In 1900, the pressure to be “scientific” dominated the cultural landscape. The public constantly heard about the virtues of science: rigorous methods, orderly approaches, experiments, hypothesis testing, leading to discovery of truth or the one best way. There were books in the first decade of the 20th century on “scientific” everything, from selling to teaching, to child rearing. Even saw it in literature with the advent of two new genres the science fiction started by H. G. Wells and the detective as forensic scientists started by Arthur Conan Doyle. (Barzun, *A Stroll with William James*, p. 202). The scientific project of vocational psychology was intimately connected to broad changes in late 19th and early 20th century America. A new epistemology of logical positivism swept the country and valorized science as the royal road to knowledge for an industrial and urbanized age.

Origins

It is our thesis that Vocational guidance offered by friendly volunteers at YMCAs and other community centers evolved into a cultural project of helping people find work in the cities of the new industrial era. Guidance soon supplied an authoritative and culturally approved mandate for matching people to positions. Its practitioners, led by Frank Parsons, generated models and methods that matched human nature to the needs of an industrial democracy. As early as 1894, Parsons urged a systematic approach to matching people and positions when he wrote, “Men work best when they are doing what Nature has especially fitted them for. A sensible industrial system will therefore seek...to put men, as well as timber stone, and iron in the places for which their nature fits them” (Parsons, 1894, p. 16). Lysander Richards proposed the new science of

Vocophy. Scientific vocational guidance gave order to chaos and generated constructs that made the issues "thinkable."

Parsons scientized vocational guidance, which had been the work of "friendly visitors." He organized a bureau to "give scientific vocational counsel to the young."

He stated what would become the paradigm as follows:

"In the wise choice of a vocation, there are three broad factors: (1) a clear understanding of yourself, your aptitudes, abilities, interests, ambitions, resources, limitations, and their causes; (2) a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work; (3) true reasoning on the relations of these two groups of facts." (Parsons, 1909, p. 5)

It was the paradigm of P-E fit that made "thinkable" the problem of matching individuals to the needs of a new society. This paradigm provided a methodology to serve as the core of the discipline, namely the model of person-job fit that matched individuals to the needs of a new society. P-E fit as a superordinate construct prompted test construction, occupational information and decisional research.

To implement the model, Parson, who was an engineer-law professor-social activist turned to psychology, and in particular Hugo Munsterberg who was testing street car workers. Parson hoped to find techniques from psychological laboratories for self-analysis. He found that the new science had none to offer so he relied on self-analysis techniques. The vocational guidance workers quickly turned to providing occupational information (Alle, Cleveland Survey) to combine with self-analysis. It did not yet stand on scientific foundation. Lacking scientific methods Parsons and guidance movement concentrated on interviews, guided self-analysis, and occupational information.

This bifurcation between Parson's steps one and two was to last throughout the century with one group of vocational psychologists focusing on

Without trying to be overly simplistic, the two groups could be characterized as the East Coast versus the midwest approach to vocational psychology and the P-E fit paradigm.

So continuing the story the East Coasters such as Kitson at Columbia and Brewer at Harvard continued to pursue self-analysis without tests and then exploratory behavior and occupational information. **Vocational guidance** focuses on ways and means of providing students with information about the world of work and emphasized courses in vocations (Brewer's books) lectures, roundtable discussions concerning vocational opportunities, and systematically visiting businesses and industrial concerns to orient them to work world

Their approach lent its name to the era, the observational era.

During these years, Kitson led a movement in vocational psychology called "self-analysis" (Williamson, 1964). This movement replaced the character analysis movement of the

19th century. It rejected psychological tests because of their low validity coefficients, preferring to rely instead on individuals' self-appraisal of their abilities and interests. Today, the line of research on self-appraisal remains vibrant as investigators examine topics such as self-estimates of abilities, self-efficacy, and self-knowledge.

Even if tests showed more validity, Kitson had another major concern about their use. Kitson shared Ayres' (1913) concern about the logical flaw in vocational psychology's paradigm of matching people to jobs. Ayres (1913) had reasoned that the method worked better in personnel selection than in vocational guidance. In personnel selection, the task is to *select a person for a position*. Here tests are useful for sorting out the most fit candidates by identifying those who possess the needed qualifications for one kind of work. In vocational guidance, the task is to *select a position for a person*. The problem is to identify the best position from among the vast number of possible occupations that a person could ably do. According to Ayres and later Kitson, vocational tests are great for choosing persons for positions but not for selecting positions for persons. They reasoned that vocational guidance practitioners need occupational information more than they need personality tests, and they must remember that "people and positions are both plastic, not rigid, and much mutual change of form often takes place without injury to either person or position" (Ayres, 1913, p. 237). In this regard, Kitson frequently quoted William James in stating that vocational biographies will never be written in advance. In 1921, Kitson (1921) argued that "the cult of tests for analyzing the individual, with its formalized ritual, has so dazzled its devotees as to blind them to the possibility of another method of approach to personnel problems" (p.141). Kitson urged vocational psychologists to "leave the shelter of his academic laboratory and enter the arena of occupations" (p. 146).

The Kitson approach continues to this day, and we pick up the strand again in a minute.

Empirical Era

Give Kantor 1924 book as starting date for this era but of course its precursors started with Munstergers work on testing, accelerated during World War I and hit a Crescendo at Carnegie and then Minnesota.

And the other group **Student personnel** work later focused on ways and means of analyzing the potentialities of individuals as a necessary first step in guidance (Paterson, 1937).

The empirical era emphasized the individual, rather than occupational info. It essentially was apotheosis of the psychology of individual differences. Accepted idea that individual differences is psychology's most fundamental concept

From character and character analysis of Parson to characteristics. The early leaders of psychology in the late nineteenth and early 20th century sought to use experiments to uncover universal laws. Wundt, Fechner, Weber, and vonHelmholtz

That foundation was provided by the emergence of field of individual differences. This specialty emerged from Galton's statistical model of the normal curve which provided a rationale for psychological measurement and the invention of correlation as a technique for data reduction. Early focus was on individual differences in intelligence, personality, and interests. The psychology of individual differences was the basis of many aspects of applied psychology, for example Thorndikes' educational psychology and Vitelees' industrial psychology but none more central than vocational psychology. Voc psycholgoey then emerged as scientific basis for the matching model, the science that Parson craved. It relied on the psychological test, which summarized in numerical scores the results of describing and analyzing the behavior of an individual.

In 1911 James Rowland Angell presented the inaugural series (8) of eight lectures at Union College. In the Of his Ichabod Spencer Lectureship in Psychology, He tried to give a general audience of college students and lay public a “comprehensive impression of the principal features of the psychology of today.” He devoted lectures to topics such as physiological psychology, experimental psychology, abnormal psychology, and social psychology. The fifth of the eight lectures was entitled “Individual and Applied psychology.” He noted that psychologists had not yet settled on a name for the psychology of the individual, sometimes calling it individual psychology, variational psychology, or differential psychology. Its subject matter was portraying the mental traits of a particular individual and from this collection of individuals attempting to work toward a definition of psychic types. Individual psychology differed from general psychology which focused on generalized principles about the functioning of the mind (e.g., memory, perception,) Angell claimed that the study of the individual led naturally to the fields of applied psychology (p. 173) because the fields of education, law, medicine, and business, have to deal with particular human beings and the peculiar traits which they may present. . To these practical enterprises the psychologist offers a method for ascertaining essential information. With regard to business, he concluded that the greatest contribution had been in the area of advertising, determining what makes a good advertisement by studying variables such as attention and memory. He forecast that psychology would “shortly be able” ...”to test a particular individual in such a way as successfully to determine whether he ought to enter upon a given industry” (p. 184) based on his muscular and mental equipment because trades or occupations call for relatively distinct types of motor and mental equipment. These methods will aid in the distribution of human energies into suitable fields. Angell, James,

Rowland. (1918). Chapters from modern psychology: The Ichabod Spencer Lectures delivered at Union College in 1911. New York: Longmans, Green, and Co.

World War I used intelligence tests to classify and Dill's rating scales. The trade test division invented empirical keying when they constructed tests that could discriminate first between individuals who were members of a trade and who were not and second could be applied successfully to new groups. This was beginning of what is now criteriaon-related validity. Led to aptitude tests which assess a person's potential for success in particular occupations. Because iq and g differentiate well between levels of occupational attainment but not between occupations at the same level (Roe), interests became important. To predict complex outcomes, multiple-uncorrelated- predictors work better than single indicators. To predict within level occupations, minnesota added measure of mechanical ability to supplement g which led to multiple-aptitude tests for within level differentiation.

Strong came from war to Carnegie tech and applied this technology to interests.

Now joined by study of individuals by psychologists in midwest
Minnesota perspective on person focused on abilities and aptitudes
Developed the matching model
Strong developed the resemblance approach to matching.

Zimney, job characterization

Saw separation of selection from guidance, and classification waited until World War II

Highlights = Anastasi Differential Psychology, Bingham Aptitudes, Strong interests, Super
Appraising (four kinds of interests)

Viteles (1932). On graph describe person's characteristics and occupation (job psychograph)

Precursor of commensurate measurement. It was an adaptation of Army personnel card.

Viteles (1936). "Clinical matching" the new matching model succeeds parson.

use clinical judgement to estimate "goodness of match"

view p-e fit as a mosaic of individual stones. Do not look at each stone individually, look the pattern. Lighner Whitmer, father of clinical psychology, in 1921 encouraged his assistant Morris Viteles to apply clinical techniques to vocational guidance. This initiated use of clinical methods with Parson's paradigm. Clinical meant other than teaching or research psychology. In 1896b Witmer in a paper defined clinical method as examination of human beings "one at a time."

Paterson= combined psychograph and case history into case conference method adapted from social work..

While psychologists from midwest largely ignored occupational information, in 1932 the National Occupational Conference was organized and psychologists from midwest re-entered the study of occupations. They insisted on describing occupational requirements empirically based on worker's capabilities.

Viteles, 1934, Paterson, 1934 and Paterson's colleagues at MESI

Dodge 1935 Dvorak 1935 Traube 1933

Psychologists approach to occupational information

Paterson and colleagues at Minnesota Employment Stabilization institute devised "occupational ability patterns" to characterize occupations by measures of abilities of people employed in them.

Describe jobs in terms of abilities. Strong did commensurate measurement on interest. Strong keys = items that differentiate

Kuder used correlation of all items to group, not need for reference group

Matching model atheoretical. Intervention like consultation model, rational problem solving by teaching and advising. Help client get occupational info, self-knowledge, and match two to select options. Actuarial methods. Therapy during this era was done by psychiatrists, and psychologists were psychometricians or mental testers.

Matching man to job

Williams and Darley (1937) model of intervention had six steps or clinical procedures in their case study model of clinical counseling. Analysis (test battery), synthesis of test results with case study data), diagnosis of problems into one of six areas— financial, educational, vocational, social-emotional-personal, family, and health or physical disability):

decides as to test them and tell them approach to test interpretation

THEORETICAL ERA

Trait and factor = congruence

Matching model atheoretical, not based on an explicit model of vocational behavior such as those later proposed by Holland, TWA). Behavior theories identify pertinent variables and measures, organize these variables into some coherent structure, and used the structure to make predictions.

Trait and factor - human factors emerged after WWII

Cattell (1950) and Eysenck (1953).

Factor analysis, although devised by Pearson, accelerated with high speed computers. To articulate factor theory after World War II use manifest variables to measure latent factors.

Called personality traits and ability factors. Now, instead of assessing variables selected individually and intuitively, measure some more fundamental latent factors and traits that have been objectively identified by factor analysis as fundamental.

Became trait and factor counseling.

Williamson's (1965) exposition most cogent: (slightly reordered from original presentation on page 194-195).

1. "Each person is an organized, unique pattern of capabilities and potentialities."

2. "These capacities are differentially correlated with different work tasks, so that different capacities are significantly involved in different tasks or behavior"

3. "There is some degree of homogeneity or commonality within each occupational criterion group; therefore diagnostic tests should be composed of items which predominately characterize one occupational criterion group as compared with other occupational groups.

4. "The highest prediction of success in work tasks and in school is obtained by a battery of unique trait tests which correlate low with each other but cumulatively high with the criterion."

5. "The diagnosis of potential should precede choice or assignment to or placement in work tasks or curricula."

Congruence then rests on the key assumption that good fit is like a jigsaw puzzle (Schneider, 1987), a meshing of personal and environment characteristics.

Ginzberg critique

decision-making became focus

Brayfield and Crockett distinguished satisfaction from performance

Correspondence measurement with Holland and TWA Caplan

Critic = Super need readiness content process focus on decisional process

Super added affect to Minnesota rationality

Self-concept objective versus subjective

listening to subjective (individual and affect) rather than testing objective (society and reason) [norms = social comparisons]

Roger's critique of trait and factor

Super's incorporation and life theme

Subjective versus objective fit (Caplan & Van Harrison (1993)

Leads to new variables = 1 contact with reality

20 accuracy of self-assessment

TWA = Response capabilities (skills) and reinforcer requirements (needs)

When factor analyze surface traits of need and skill get source traits of abilities and values in career counseling for future rely more on source than surface traits.

skill/ability to requirements = satisfactory

needs/ values = reinforcers = satisfaction

satisfactory and satisfaction leads to tenure

Adjustment in real world of skills and needs, leaving abilities and values to be seen as stable

Holland mixes abilities and interests together into vocational personalities

French & Caplan:

needs-supplies

demands-abilities.

Muchinsky (1987)

supplemental congruence - fits because x suppplements, embellishes, similar, sameness

-defines environment as people

complementary fit - to make whole

-defines environment as demands and requirements (team needs a leader)

p-e fit works best in stable organizations and with people who like stability

METHODOLOGICAL ERA

Pervin (1968) in his Psychological Bulletin review on individual-environment literature prompted view that individual differences interact differentially with occupational differences to produce outcomes.

Now focus on person shaping environment and environment shaping person

The processes of reciprocal interaction

Kanter 1924 (p. 2). Psychology as a science, distinct from other sciences, must have its unit of study. "... psychology cannot take as its unit anything less full of content than the actual response of a person to a stimulus object..." Study psychological reactions which individuals perform to adjust themselves to the stimulating objects in their surroundings.

Interactionists argue that it is not a linear addition of person plus position that is key, but it is person times position, a multiplicative combination that produces something new and unique. It is not the person or the environment that is critical, nor even their fit together, it is their interaction.

T + F becomes interaction when focusing on interaction and reciprocal relationship

Interaction

Correspondence ... "a reciprocal and complementary relationship between the individual and his environment. Correspondence, then, is a relationship in which the individual and environment are responsive (mutually responsive)." Each changes to meet each other's needs in an ongoing process of adjustment. P. 45 Lofquist and Dawis (1969)

Rounds and Tracey (1990, p. 18) articulate the assumptions of P-E fit theory as three:

1. Individuals seek out and create environments that provide or allow expression of their dominant traits
2. Degree of fit is associated with significant outcomes including performance, productivity, satisfaction, turnover, stress
3. Process of fit is reciprocal with person shaping environment and environment influencing the person.

Conceptual and measurement issues

P-E interaction

Rounds, Tracey, Prediger,

Edwards,

Job, occupation, career

p-occupation = resemblance of people in occupation

P-job = abilities and interests to job demands point to point correspondence

measurement of environments Gottfredson PCI

Objective versus subjective

interest in Erikson and psychosocial identity

vondracek (1987) developmental contextualism, goodness of fit

developing individual, developing environment, and evolving interaction of the two

explains "interaction dynamics"

A) person's action on context

b) context's reaction to action

c) context's action on the person

d) person's reaction to feedback which circles back to a

Rounds and Tracey (1987) How should p-e scores be calculated?

How do we determine p-e fit?

They say use commensurate concepts:

units (units are roughly equivalent on both sides)

structure = (factor analyses same) parallel and equivalent organization

Holland (1987). Estimates of congruence with more info (scale scores, profile shape) produce higher r to criteria.

Ichan

Meta-analyses Spokane 1985 literature review,

1987 Assouline

Key pubs = Edwards, Assouline & Meir 1987 Meta-analyses, two JVB issues (Spokane 1987).

Savickas (2000) Rounds and Tracey 1990

Resurgence of interest in Strong resemblance, because of person interacting with other persons in occupation focuses attention on the nature of the SOCIAL environment. Environments vary in part because of the skills and attitudes of the people in them. Interpersonal dynamics.

Schneider, 1987, p. 355 "Since activities in the environment that have an effect on people always involve people then it is the nature of the people in an environment that make it the way it is."

Human beings in an environment create different kinds of behavioral settings by their own behavior. (Shaping)

Schneider's (1987): Attraction-Selection-Attrition Framework

People are attracted to settings by the kinds of people functioning in those settings.

People in a setting allow in (select) who are compatible with themselves

People leave setting when they do not fit in with others in the setting.

These three variables combine to formulate a (ASA) model of organizations. Organizational culture and social climate, and policies are determined by people who are attracted to the setting, selected to join it, and remain in it.

TODAY

Schneider's thinking on organizations is important today. He asserts that organizations will become ineffective in today's world to the extent that they allow ASA to function. He believes that organizations must combat ASA inertia to create diversity and differentiation in organization so necessary to compete and adapt in a changing environment.

Muchinsky's complementary versus supplementary

Holland's 1997 construct of environmental identity. "Explicitness and consistency of an organization's goals, work rules, and rewards for performance (p. 59).

Technology for study fit has improved but still need better ways of measuring environments

Aspirations work

Critics = male middle class only ones free to choose

British = opportunity structure

Social construction

Tinsley

Critique p-e assessment does not really get at personal uniqueness (meaning) it is match making rather meaning making.

multiculture critique

Leong (1996)

echoing Kluckhohn and Murray's 1950's work on determinants of personality formation:

each person is to some extent like all other people (large variation in location and size of heart)

like some other people (Strong)

like no other person (Savickas)

Embrace multidimensionality in relation to universal, group, and individual difference variables
(intergroup cultural differences)

TODAY

Person matching

select whole person for team

divergent thinking and multiple perspectives

P-O fit values, goals, and personality of individual by values and goals and culture of organization

need innovations in putting it into practice, need better assessment

and intervention (help people learn to adapt (self-efficacy) adapt = contextually prompted behavioral response to fit environment.

William Alexander 1934 - need a theoretical basis for guidance and need commensurate measurement