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# Employee Management Using Behavioral Developmental Theory

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Lack of employee engagement and productivity due to job misfit is a problem faced by many managers. Improving job fit plays a significant role in increasing employee engagement, productivity, and engagement. The instruments reported here are effective in providing a better method of assessing job fit. The model of hierarchical complexity (Commons & Richards, 1984; Commons, Trudeau, Stein, Richards, & Krause, 1998) offers a standard method of assessing employee behavior. The instruments developed with the model as a basis are (a) Decision-Making Instrument and (b) Perspective-Taking Instrument. In addition, a behavioral version of the Holland Occupational Interests scale is introduced. Decision-making or problem-solving scores help assess how difficult a task an employee successfully completes. Perspective-taking scores reflect how well an employee understands social situations and people's actions. Our behavioral version of the Holland scale identifies the relative reinforcement value of engaging in different categories of work activities These three scores give companies comprehensive knowledge of the hierarchical complexity stage of job performance and occupational interests. This should help companies better manage human resources, hire and develop employees, and shape the future organizational structure.

*Keywords:* hiring, model of hierarchical complexity, recruitment, employee engagement, behavioral developmental theory



A primary problem with which managers struggle is employee engagement. According to a 2014 Gallup study on the state of the U.S. workforce, only 31.5% of American workers feel engaged in the workplace. Demonstrated links between employee engagement and productivity (Boon & Kalshoven, 2014; Christian, Garza, & Slaughter, 2011) indicate that the reported deficit in engagement has serious implications for individual firms and for the American economy. The 2014 Gallup poll also estimates disengaged employees cost the United States between $450 and $550 billion annually. With a large proportion of U.S. workers not performing at their full productive capacity, there are serious implications for firms and for the U.S. economy as a whole.

Employee engagement refers to a psychological state of involvement with, as well as com-

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mitment and attachment to, the workforce. It involves effort or certain observable behaviors including prosocial and organizational citizenship behavior. This might include behaviors such as eagerness to discuss work-related improvements with others (Bridger, 2015; Ludwig & Frazier, 2012). An engaged employee exhibits these behaviors through a combination of vigor, dedication, and absorption (Schaufeli & Bakker, 2004). There is an abundance of suggestions and recommendations on how to encourage engagement and increase productivity. As will be discussed later in the text, many of the theories and assessments used to make these determinations have not been successful. The kind of behavioral testing to be described here could be more successful if it provides firms with more usable insight about their employees, gives actionable recommendations for improving their human resource management strategy, and encourages employee engagement. The objective of the behavioral testing introduced here is to provide insight into an employee's fit to the job both from an "interests" point of view, and in terms of their "smarts," which we define as their success at solving difficult problems. According to Moreland (2013), improving job fit plays a significant role in increasing employee satisfaction and engagement. It may also prevent disengaged employees from undermining the success of other workers.

If workplaces are to adopt behavioral testing for these purposes, then it is important to choose the appropriate methodology to assess employee potential and interests. In a quickly expanding market populated with tests advocating outdated methodologies and personality type indicators, not all tests have the necessary refinement and development to deliver reliable, useful results (Stabile, 2002). One measure commonly used at present is the Myers-Briggs. Unfortunately, most studies have shown multiple problems with using this measure as a way to predict job performance (Druckman & Bjork, 1991; Gardner & Martinko, 1996). Also, because this test, like many others, is not operationalized in behavioral terms, its relationship to behavior in the real world is unclear.

How do you measure job fit in such a way that it has predictive validity? One version of predictive validity for these purposes is whether or not a set of behavioral measures shows that an employee is suited for his/her position, or, in other words, his/her job fit. We posit that there are just two variables that capture most of the variance defining job fit (Commons, 2015; Commons & Thexton, 2015). First, is the person "smart" enough to excel at the tasks? This roughly corresponds to "abilities." To measure this, we propose using a measure of stage of development. As we will discuss in more detail in the following text, stage of development measures have a 40-year history. This includes extensive psychometric analyses, including Rasch (1980) analysis and factor analysis. A second important factor in predicting job fit is whether or not the person finds doing the tasks that are required reinforcing. For this, we recommend using a measure of the person's interests. For this measure, there have been some predicative validity studies as well. These have been focused on top management and sales people. The Holland Interest Scale has about 90 years of development and testing (Donnay, 1997; Holland, 1985; Worthen, 1995).

## Problems With the Current State of Behavioral Testing in the Workplace

The market for workplace behavioral testing has experienced an influx of companies offering recruitment and talent management solutions (Stabile, 2002). As a result, personality tests and similar evaluations have proliferated in the industry. Despite their popularity, they operate on assumptions that render them narrow in scope and limited in the utility they bring to human resource management.

In addition to personality testing, many firms have integrated intelligence screening into their recruitment and talent management strategies. An intelligence screening may seem a useful apparatus to assess the "smarts" of a candidate to solve problems. In its present form, however, it is not necessarily indicative of future performance, especially in the workplace. The major studies of predictive validity of IQ tests have relied upon the relationship between performance on the tests and performance in school-related tasks. There are other issues as well with using intelligence tests for workplace assessments. For example, Nuutinen and Lappalainen (2012) concluded that human resource professionals should refrain from relying on "specifically defined templates," such as an IQ test, because possessing certain qualities does not

guarantee the leadership success of an individual. In addition, concern over test bias and the underperformance of linguistically and racially diverse test subjects should be considered. Furthermore, there are sizable class differences associated with whether or not people acquire the intellectual skills assessed by an IQ test. Because of these issues among others, IQ tests have intrinsic biases that prevent them from being reliable indicators of true intelligence or performance (Ford, 2004).

A much better measure of smarts is developmental stage (Featherston et al., 2016; Giri, Commons, & Harrigan, 2014). Stage is a much better measure of smarts because it is unidimensional, as well as culture and class free. We also have evidence (Featherston et al., 2016) that intelligence tests measure relatively low-behavioral stage skills. These are at most comparable with skills used by workers in midmanagement jobs. For example, many of the items on intelligence tests measure skills similar to those used by someone who deals with customers at a department of motor vehicles. There is little on the test that is related to higher level management tasks. As we will discuss in more detail later in the text, positions at that level and above require that individuals successfully complete tasks that involve multiple-variable systems. Because we have shown that intelligence tests do not measure these kinds of more complex tasks, they would not be adequate for choosing upper level managers or higher executives. Nor do intelligence tests indicate where a person may fit in a corporate structure. This is seen in a study conducted with a sample group of engineers, in which mathematical–logical intelligence did not correlate with successful leadership as perceived by subordinates in the sample (Salehi & Gerami, 2012).

As testing in professional environments has become more commonplace, employers increasingly turn to custom-designed tests. Companies that provide these tests allow for human resource departments and hiring managers to select which traits are relevant or necessary for a certain position. The company-created tests will screen candidates and report which people most closely fit the criteria as specified by the company. However, the ability to customize an assessment and replace psychologically meaningful questions with focused inquiries does little to yield reliable results and may actually detract from the utility of the assessment.

Despite these difficulties in previous approaches, reliably and validly predicting who will be a successful candidate most probably involves just a few variables. For example, it may appear difficult to guess what predicts a good computer programmer versus a manager. Even if the hiring team does have a good idea of what traits they desire in an employee, it is still difficult to determine the optimal mix of tendencies. As most people are on a spectrum between traits, these tests are limited in the insight they can offer employers (Stabile, 2002). Studies have shown that although specific traits may seem like good indicators, their effects on the job are nonlinear, making measurement difficult (Day & Silverman, 1989). Tests for personality traits lack both scientific and clinical support and should not be used to determine a final hiring decision.

## The Model of Hierarchical Complexity May Be Part of the Solution

The model of hierarchical complexity (MHC; Commons, Gane-McCalla, Barker, & Li, 2014; Commons & Richards, 1984; Commons et al., 1998) offers a standard method of examining universal patterns of development. It has origins in Inhelder and Piaget's (1958) theory of general developmental stages but seeks to quantify behaviors and measure a person's proclivity for completing a specific task. Tasks, such as job-related tasks and others, are shown to be ordered in terms of the hierarchical complexity of the actions required to complete the task effectively. For example, one job might require a person to correctly sort items and to stack them neatly in their correct locations using categories. Another job might require a person to figure out under what conditions to raise prices in their store. A third job might require a person to manage many divisions of a company or organization. The first task is much less hierarchically complex than the second and third one. One important characteristic of this model is that it separates the hierarchical complexity of the task to be completed, called the *order of hierarchical complexity* (OHC), and the performance of the individual who is working on the task, called *stage* or more fully *behavioral–developmental stage*. We propose that one aspect of job fit is whether an individual shows the

proclivity for completing tasks at the order of complexity required by that particular job.

Compared with other tests of "smarts," MHC-derived instruments do as well as it is possible in assessing this aspect of job fit. This is because MHC is mathematical and contentless. It works in any domain and language. It can be applied to any task. MHC assessments are designed such that they are not based on domain-specific information. Rather, any assessment using MHC is based on an ideal solution of a specific task. Using the MHC, Commons and colleagues have shown that there are 17 OHCs (Commons, Gane-McCalla, et al., 2014; Commons et al., 1998). The numbering of the orders and behavioral–developmental stages are described by Commons and Jiang (2014). OHCs starting with the Preoperational Order 7, and continuing to the Paradigmatic Order 14, are relevant for adults. Because we estimate that ~1.5% of individuals would be found who could successfully solve tasks at Order 13 (Metasystematic), and even fewer at Order 14 (Paradigmatic), most instruments constructed by those doing research in this area do not go beyond the Metasystematic order. Only people performing at Concrete Stage 9 and above would be applying for employment. Brief descriptions of these OHCs, also relevant to the workplace, are seen in Table 1.

Next, we present two instruments that are based on the MHC. We will suggest ways in which these have useful applications in recruiting, training, and maintaining workforces.

## Decision-Making Instrument

To make an instrument using the MHC, we devise a series of tasks, beginning with a task at the lowest OHC to be used in assessing behavioral–development stage of performance and ending with a task at the highest order. As already mentioned earlier, the orders of complexity most relevant for adults are Preoperational Order 7 to Metasystematic Order 13. All the instruments were administered online, and computerized reports were generated.

The first assessment, the Decision-Making Instrument (DMI), measures the amount and type of information that an individual is able to consider in a decision-making process. Pascual-Leone (Pascual-Leone, 2011; Pascual-Leone & Johnson, 2017) referred to this as a measure of working memory. This assessment can be directly related to the task demands that certain jobs require of individuals as discussed earlier.

The DMI is based on a problem called the laundry instrument (Commons, Li, et al., 2014). The laundry instrument is a causality task based upon Inhelder and Piaget's (1958) pendulum task. The laundry instrument asked participants whether or not a piece of laundry would be clean after varying treatment. Participants were required to view a table depicting what had already happened (informational episodes) and then make predictions about what would happen in a new episode. Based on this method of construction, the DMI then consisted of tasks at the Preoperational Order 7, Primary Order 8, Concrete Order 9, Abstract Order 10, Formal Order 11, Systematic Order 12, and Metasystematic Order 13 in the MHC (Commons, Gane-McCalla, et al., 2014; Commons & Richards, 1984; Commons et al., 1998).

The history of the different variants arising from the pendulum task (Inhelder & Piaget, 1958) begins with the plant problem created by Kuhn and Brannock (1977; also see Kuhn, 1974; Kuhn & Angelev, 1976). Kuhn and Brannock used the plant problem because they felt it offered greater external and ecological validity than Inhelder and Piaget's pendulum task. The pendulum task is what is called an "isolation of variables" problem. That is, to perform at the Formal Stage 11 (Stage IV in Inhelder & Piaget, 1958), the pendulum task required participants to perform an experiment by manipulating a single variable while holding all other variables constant. They had to figure out which variable controlled the rate at which a pendulum weight would cross the lowest point. The problem with the pendulum problem is that the content was in the physics domain, with which many participants are unfamiliar. The plant problem included everyday variables such as the amount of water or whether plant food was used or not, and depending upon the variables used, the plant would either come out healthy or sick. Even though the problem consisted the same number of variables as the pendulum problem, and was in other ways a complete copy of it, because of the familiarity of the subject matter, it was less intimidating for participants. Kuhn and Brannock (1977) felt that their plant problem more closely reflected "natural experiments" in which the individual does not have to

Table 1
*Stage-Based Decision-Making Behaviors Exhibited by Employees*

| Stage | Decision making |
|---|---|
| 7-Preoperational | Almost no one can work at this stage. People performing at this stage are often developmentally disabled or severely mentally ill. They have trouble telling reality from fantasy although they may describe a situation in a coherent manner. |
| 8-Primary | The employee's reasoning skills are low. At the primary stage, the employee can follow clear and simple instructions but rely heavily on authority figures such as their managers to guide their actions and choices. The tasks they can handle must be simple and straightforward, such as stacking boxes, sweeping an area, and stocking a shelf. They can make simple logical deduction and can work unsupervised for only a moderately short period. |
| 9-Concrete | The employee's reasoning skills are low. At the concrete stage, one must be given instructions but can make choices based on explicit guidelines. The tasks given can require various skills as long as guidelines are given. They can work unsupervised for a moderate amount of time. |
| 10-Abstract | The employee's reasoning skills are average. At the abstract stage, one follows procedures and learns social normative ways of doing things. Therefore, they understand social norms and easily imitate what other people do. This individual uses abstract notions to make their decisions, e.g., best, coolest, never, anyone, or everyone. These notions are generally not completely accurate but at the abstract stage they are considered important. When reasoning about a position they use assertions that do not include fact or logic to justify their position. At this stage one can work all day but need to be supervised a lot at first.<br>These employees can complete assigned work such as database entry within given timeframes, meet work objectives that are clearly defined with easy-to-follow instructions, collaborate with others they may not know, and possess planning skills necessary to meet individual task deadlines, basic quality standards, and routine content requirements. |
| 11-Formal | The employee's reasoning skills are slightly above average.<br>At the formal stage, one can carry out instructions in a logical fashion and follow clearly stated policies. This individual is capable of making decisions based upon empirical or logical evidence. They can work with one causal or predictive variable at a time. This translates to carrying out a single objective that is part of the greater whole, for example, solving one-dimensional problems, calculating interest rates, collecting marketing data, and writing reports that follow a format. They follow authority and social norms; following authority is a big part of being at formal stage.<br>At this stage, they can manage small teams; plan and measure the operational work of others such as making a schedule, keeping track of whether employees are following it, keeping employees on task, interviewing, and filling out entry-level, rudimentary jobs with qualified personnel; and motivate and coach individual contributors in activities such as restocking shelves at the appropriate time or helping others to understand instructions. They are capable of meeting team business goals and objectives such as ensuring employees are on task and informing higher level manager on employee activity. They reallocate time to complete their own work but also help others perform effectively. |
| 12-Systematic | The employee's developmental stage is relatively high. At the systematic stage, one can be given instruction regarding goals without the need to dictate how the specific goals [details] and objectives should be reached. They balance competing concerns and regulations and make judgments when there are multiple concerns and conflicting policies. They may supervise relatively large single units, such as one department. They understand unintended consequences and may adjust policies to deal with them. They calculate risk and understand its many sources and its costs and benefits. They write relatively complex programs. They do not need regular supervision. Performance of teams they supervise may be used as a measure of success. |
| 13-Metasystematic | The employee's developmental stage is high. This manager constructs multivariate systems and matrices. For example, coordinating work between engineering and design departments. They work with the amount of information necessary to manage a team. They can put together a good team and orchestrating their work with marketing, accounting, and any other necessary teams. These employees can manage middle managers. They can select supervisors or assistant managers and hold them accountable for managerial work, and measure manager progress by quantitatively tracking activity, results, and providing empirical determination of success. They can coach and develop operational managers who conduct activities such as keeping their team on task or ensuring there is always enough stock in supply and manage the boundaries that separate units that report directly and with other parts of the business. |

Table 1 (*continued*)

| Stage | Decision making |
|---|---|
| 14-Paradigmatic | The employee's behavioral–developmental stage is extremely high (.06% of population). These employees are C-level managers and usually their own bosses. They are the innovators who institute the process, involve the stakeholders, and sell the solution. They tend to be long-term visionary thinkers regarding business models, objectives, opportunities, negotiations, external influences, and business direction in general. At this stage, they can develop operating mechanisms across multiple business lines to know and drive quarter-by-quarter performance in tune with long-term strategy. |



solve a controlled laboratory-type experiment like the pendulum task.

The general direction of this change was positive in terms of bringing greater ecological validity to studies of isolation of variables problems. But the new instrument had certain issues such as the possibility for a participant to find multiple simple answers and a lack of consistency in the number of variables between episodes. As a result of these difficulties, the original plant problem was altered by Commons, Miller, and Kuhn (1982). The new instrument had two positive and two negative possible causes in each episode. There were three episodes with positive outcomes and three with negative ones. This created six information episodes that had four variables and 10 test episodes. Because everything was counterbalanced in this fashion, it made it less likely for participants to be exposed to one variable more than others. There was still an issue, however. And that was that for any finite number of trials, the combination of the three variables that were complementary to the causal variable would also be reliably associated with the same outcome. For example, if the plant food were the causal ingredient, then the combination of the leaf lotion, small or large pot, lot or a little water would also be causal. Almost no participants detected this combination. Nevertheless, this meant that the problem still needed perfecting. As a result of these earlier studies, the method of creating different subtasks was initiated, each one designed to be at a different OHC.

## Perspective-Taking Instrument

The Perspective-Taking Instrument measures the employee's ability to understand social situations, at least in terms of the notion of informed consent. Employees completing the Perspective-Taking Instrument gauge the helpfulness and quality of guidance of varied hypothetical helpers.

The Perspective-Taking Instrument, like the DMI, is an online test. It asks participants to rate on a 1–6 scale the quality of six "helper" figures' arguments in support of their specific methods of providing assistance (Giri, 2016). Each helper's argument corresponds to one of the six stages in the MHC, ranging from Primary Order 8 to Metasystematic Order 13. An example of the vignette from the abstract Stage 10, would be as follows:

> Smith recently completed training on providing guidance and assistance for the Person's problem. Smith says that the best counselors regularly recommend this guidance and assistance. Smith explains the method and tells the Person that it will probably work for the Person as well. Smith also tells the Person about other methods that may work. Smith asks if the Person has any questions. The Person does not have questions, and Smith asks if the Person wants to accept the recommended guidance and assistance. Feeling that Smith knows best, the Person accepts the guidance and assistance.

After reading each of the vignettes, participants gave ratings to that particular helper's methods, using a rating scale from 1 (*extremely poor*) to 6 (*extremely good*). The following questions were rated: "Rate Smith's method of offering guidance and assistance," "Rate how clearly Smith expressed their idea," and "Rate the degree to which Smith informed their person." They also gave ratings from 1 (*not at all likely*) to 6 (*extremely likely*) on the following questions: "Rate how likely you would be to accept the guidance and assistance offered by Smith," and "Rate how strongly you would recommend Smith's guidance and assistance."

The arguments given in the vignettes at each behavioral–development order were based upon a theory of the stages of perspective taking (Commons & Rodriguez, 1990, 1993; Rodri-

guez, 1989, 1992; Rodriguez & Commons, 1989). These behavioral–developmental stages, upon which the vignettes are based, are shown in Table 2. The stages in the Perspective-Taking Instrument were also shown to be related to how much a participant judged that a helper should be fined in the case that his or her help resulted in a lawsuit (Commons, Goodheart, Rodriguez, & Gutheil, 2006). In other words, this instrument was shown to have some applicability to important real-world outcomes.

### Reliability and Validity of MHC Assessments

The basic validity and reliability of behavioral–developmental stages have been tested by a number of different researchers using different methodologies. In one study that was particularly important, Giri, Commons, & Harrigan (2014), for example, examined two issues. First, it was shown that the OHC of a task strongly predicted the behavioral–developmental stage of performance on that task across a variety of tasks. This was done by converting Rasch item scores to behavioral–developmental stage scores. That is, Rasch item scores were regressed on the OHC of the vignettes. The *r*s across the different tasks ranged from .91 to .995. For example, the relationship of Perspective-taking Rasch scores and OHC of the vignettes was a nearly perfect linear trend line ($r(40) = .977$). This is shown in Figure 1. As can be seen, higher order item scores predict higher Rasch scores.

Another component that investigated was to account for any underlying factors that cause variance in performance scores other than a participant's behavioral–developmental stage. To test this, a principal component analysis was performed on all of the person's behavioral–developmental stage scores. This factor analysis found that there was only one factor underlying the results, and that was Stage of Development (Giri et al., 2014). There were no other significant components underlying the scores. The loadings of the items on stage were .91 and above. Thus, the sole universal factor contributing to a person's score was his or her behavioral–developmental stage.

### The Behavioral Interest Assessment Version of Holland's Scale

The third instrument used to job match is a new behavioral version of the interest test that is

Table 2
*Stage-Based Perspective-Taking Behaviors Exhibited by Employees*

| Stage | Perspective taking |
|---|---|
| 8-Primary | At the primary stage, they may appear immature in social settings and take the view of the manager even though it is possible for them to take their own view. |
| 9-Concrete | At the concrete stage, they lack social grace but can negotiate and bargain effectively with some guidance. |
| 10-Abstract | At the abstract stage, they understand social norms, easily imitate what other people do, have good manners, and are good at maintaining social harmony and pleasing others. They accept the company culture from a social norms point of view and adopt professional standards as they see them modeled or as taught. |
| 11-Formal | At the formal stage, they can revise social norms based on evidence or logical reasons. They understand social norms and can understand when a manager is needed to make a decision. |
| 12-Systematic | At the systematic stage, they balance competing concerns and regulations and make judgments when there are multiple concerns and conflicting policies. They may supervise relatively large single units, such as one department. They understand unintended consequences and may adjust policies to deal with them. They understand how to coordinate the different roles of people in the organization, particularly in one department, in a flexible manner to meet the short- and long-term needs. They can effectively deal with customers, employees, and the public. |
| 13-Metasystematic | They take the perspective of the various stakeholders including employees, managers, stockholders, and the public. |
| 14-Paradigmatic | At the paradigmatic stage, they see that there are no perfect solutions and the only partial ones. They involve all the stakeholders in muddling through to try to active a consensus as to what to sacrifice. They ask each stakeholder to represent themselves realizing that no one else can do this. They come up with a way of dealing with conflicting claims and priorities that way. |

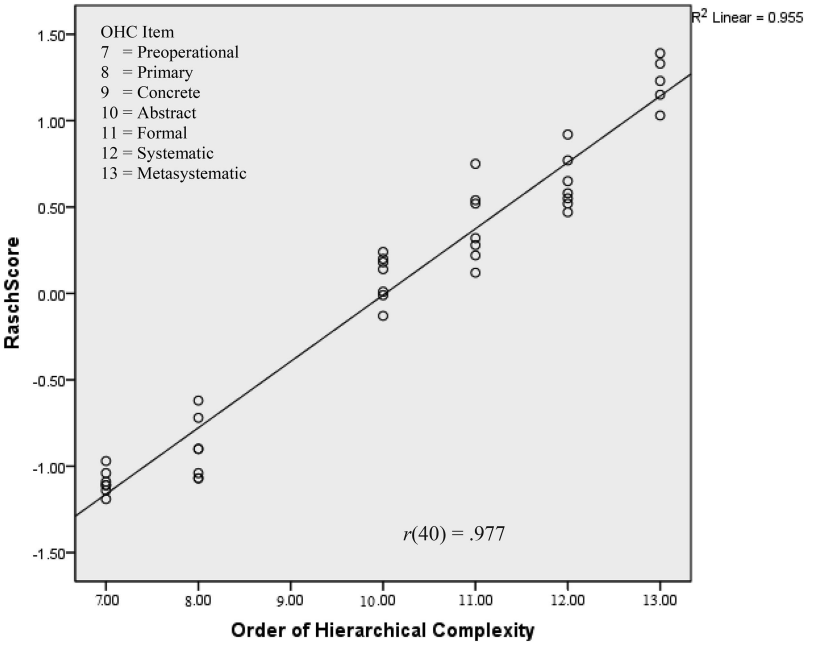


*Figure 1.* A representative regression analysis using the Social Perspective-Taking Instrument. Note that higher order of hierarchical complexity item scores predict higher behavioral–developmental stage scores. From "There Is Only One Stage Domain," by S. Giri, M. L. Commons, and W. J. Harrigan, 2014, *Behavioral Development Bulletin*, 19, p. 57. Copyright 2014 by the American Psychological Association. Reprinted with permission.

based on Holland's Interest Scale (Holland, 1997; Holland, Magoon, & Spokane, 1981). Our behavioral version is based on Holland's finding that people's "interests" have six different factors. These are as follows: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. These six factors are shown in Table 3.

The Behavioral Interest Assessment interest test is much shorter than the Holland. The items are more clearly written in terms of task or activity preferences. It also uses a 6-point scale rather than a 2-point scale (Ramakrishnan, Mei, Giri, & Commons, 2016). An example of a few items and the rating scale used are shown in Table 4. The Behavioral Interest Assessment consisted of 48 items, eight represent items from one of each factor. We found an almost perfect correlation between the results from the Behavioral Interest Assessment scores and Holland scores. We assert that the closer the match between an individual's preferences for tasks and activities to those that are part of the position under consideration, the higher the career satisfaction and performance.

## Matching

Once an individual completes the three instruments, these results can be combined to see if they are a match for a particular job. This process is described next.

First, the results from the two tests of "smarts" are used to compile a behavioral–developmental stage score for each individual. These stage scores are reflective of how well the individual analyzes and synthesizes information required for complex problem solving and for making decisions.

An example of matching according to behavioral–developmental stage is as follows. In the hiring process, the hiring manager is likely to have a list of discrete job responsibilities that are specified for each employment position. Each of these responsibilities represents a series of tasks that the hired person will be expected to carry out successfully. The difficulty of these tasks can be measured and ordered using the MHC. This measurement of task difficulty can be used to determine the stage of performance

Table 3
*Interest-Specific Behaviors Exhibited by Employees*

| Interest | Affinity | Self-perception | Reinforcers | What they are good at |
|---|---|---|---|---|
| Realistic (Doers) | Like working with objects, machines, tools, plants, or animals. Enjoy being outdoors. | May describe themselves as practical or mechanical, and values the tangible. | Tangible results of their work | They are usually reserved and generally avoid social activities such as teaching. |
| Investigative (Thinkers) | Like to observe, learn, investigate, analyze, evaluate, or solve problems. | May describe themselves as precise, intellectual, scientific, and/or scholarly, truth seeking. | Intellectual rewards | They are good at understanding and solving scientific and mathematical problems. |
| Social (Helpers) | Like to work with other people to enlighten, help, train, or cure them. | Sees self as helpful, friendly, and trustworthy. | Social rewards | Are skilled with words and are effective communicators. Characteristics include being friendly, helpful, cooperative, patient, king, forgiving, and generous. |
| Enterprising (Persuaders) | Like working with people, influencing, persuading, leading, or managing for organizational goals or economic gain. Like to see things and idea. | Sees self as energetic, ambitious, self-confident, assertive, and sociable. | Monetary rewards, power, influence, control | Generally avoid activities that require careful observations, and scientific, analytic thinking. |
| Conventional (Organizers) | Shows affinity toward working with numbers, data, records, or machines in a systematic, orderly way, value success in business, and generally avoids ambiguous, unstructured activities. | May characterize themselves as orderly, and good at following set plans, as well as being accurate, methodical, conscientious, and efficient. | Stability, monetary rewards | Generally averse to risk. |

necessary to successfully complete the tasks required for that job. Once this stage is known, it becomes possible to screen potential employees according to their ability to perform at the specified stage as determined by the testing. If their stage scores on the tests at least meet the same OHC as is required by that job, they would be recognized to be suitable candidate for that job, at least in terms of likely being capable of performing those tasks.

The second part of the matching of employees to specific jobs uses the Behavioral Interest Assessment. Once the ratings of interests are obtained, the results for each of the six factors are Rasch analyzed. A person receives a person Rasch score for each factor. The difference between scores of successful people in a like position are compared with the candidate's score.

As of yet, there have been no studies in which the two behavioral–developmental stage measures and the Holland have been given for purposes of placing employees. Yet there is a literature on how stage affects job performance. Stage predicts who becomes one of the greatest scientists (Commons & Bresette, 2000; Commons, Ross, & Bresette, 2011). In her thesis, Sabina Ravnièan (2013) collected a number of employee assessments using the MHC. Commons and Robinett (2013) reviewed how adult behavioral–development stages predicted learning success from training.

On the value and stage side, Goodheart, Commons, and Chen (2015) showed that people who had million-dollar earnings per year from sales scored at the metasystematic behavioral stage of development whereas people at the systematic be-

Table 4
*Rate How Much You Would Enjoy Performing the Following Tasks*

| Selected items | Hate | Dislike | Slightly dislike | Slightly enjoy | Enjoy | Love |
|---|---|---|---|---|---|---|
| Direct a play | | | | | | |
| Use a computer program to generate customer bills | | | | | | |
| Sell homemade cookies | | | | | | |
| Play a musical instrument | | | | | | |
| Develop a new medical treatment or procedure | | | | | | |
| Build a machine | | | | | | |
| Teach children how to read | | | | | | |
| Compute and record statistical and other numerical data | | | | | | |
| Negotiate deals | | | | | | |



havioral stage earned much less. Miller et al. (2015) showed that behavioral–developmental stage of pricing strategy predicted earnings of peddlers. Commons et al. (2006) showed that social-perspective taking in the informed consent process predicted how likely a doctor would be sued and for how much.

## Discussion

The reason that the MHC applies so broadly is that it is based on a singular mathematical method of measuring the difficulty of tasks. The difficulty of a large variety of tasks has been shown to be well predicted by the OHC of the tasks. The tasks can contain any kind of information. The model's use of quantitative principles and measures makes it universally applicable in any context. Whereas it eliminates dependence on cultural or other contextual explanations, concepts in the MHC that address such influences have been addressed in detail by Commons and Ross (2008). The single, universal dimension measured by the MHC means that HR professionals may use the same type of behavioral–developmental stage assessment across an organization, regardless of the cultural or geographical origins of the tested employee. This allows for a consistent measure of everyone's performance on the same scale.

The results of the using these instruments should help businesses in many ways. Every task that a business needs to carry out will fit one of the behavioral–developmental stages of the MHC. The results of these assessment may be used across the organization to improve workplace processes in any department and the overall enterprise. The assessments should be useful to make hiring decisions by providing insight into whether or not an applicant is likely to perform the job well, take the responsibilities that one is hiring for, and assign the right tasks to the right employees. It is also useful to structure teams to promote harmony, adaptability, and efficiency.

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