ROOSEVELT UNIVERSITY

THE EFFECT OF OPENNESS TO EXPERIENCE ON TENURE AND TURNOVER

INTENTION: A SUB-FACTOR APPROACH

A THESIS SUBMITTED TO THE

FACULTY OF THE COLLEGE OF ARTS AND SCIENCES

IN CANDIDACY FOR THE DEGREE OF

MASTER OF ARTS

IN

INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

BY

ROBERT F. MCMAHON, JR.

CHICAGO, ILLINOIS

April 30th, 2015

UMI Number: 1585918

UMI

Dissertation Publishing

UMI 1585918

ProQuest®

ACKNOWLEDGEMENTS

My thanks to the following people who helped me through their guidance and inspiration. I could not have completed this project without each of you:

For editorial review:

Ed Wygonik, Ph.D.

Adrian Thomas, Ph.D.

For support and guidance:

Brian Siers, Ph.D.

Guy DiSpigno, Ph.D.

Joe Mazzola, Ph.D.

For inspiration:

Lorry, Bob, and Brian McMahon

I would like to acknowledge my wife Rachel, Bill, and Karen Sukolsky for supporting all of my current and future academic endeavors with love, patience, and acceptance.

Abstract

Openness to experience is one of the least useful personality predictors in the workplace. The present study tested the notion that openness to experience would be a more effective predictor of tenure and turnover intention if openness to experience was separated into two sub-factors. We used a total sample size of, $N = 96$, participants, which was analyzed both as a whole and separately, segmented by students ($n = 51$) and working adults ($n = 45$).

The present study was unable to show that the sub-factors of openness to experience were more effective predictors of turnover intention and tenure. Implications of the evidence in the present study are discussed with the conclusion that openness to experience, at the factor and the sub-factor levels, is a weak predictor in the workplace.

Table of Contents

Introduction and Literature Review

The present study tested the notion that openness to experience would predict turnover if openness to experience was separated into two sub-factors. We tested this notion by separating openness to experience into two pre-established sub-factors and tested to see if the two sub-factors of openness separately predicted proxy measures of turnover. Previous research has suggested that only one of the two separate sub-factors of openness to experience predicts turnover. The present study will test the relationship between proxy measures of turnover and openness to experience expecting to find that openness to experience does not predict the chosen turnover proxies when the two sub-factors are combined.

Openness to Experience is one of the traits in the Five Factor Model (FFM) of personality. People who are high in openness to experience are creative and seek new experiences inside themselves and in the world around them.

Openness to experience is measured using a series of items, which are added together into a compensatory model to represent the "factor" of openness to experience. Items within the openness to experience factor can be separated into smaller groups, which each describe different aspects of the factor of openness to experience. For instance, people who are high in openness to experience can be described as creative or intellectually curious. Certain questions that represent the factor of openness to experience represent creativity while other questions represent intellectual curiosity. Individual responds to each of those questions are added together to represent the overall factor of openness to experience. The present study used questionnaire items to assess personality factors such as openness to experience.

People who are high in openness to experience seek new experiences, but many jobs rely on employees to do the same repetitive tasks for a long time. One might think those high in

openness to experience would avoid the repetitive nature of their jobs by turning over but, research suggests (Timmerman, 2006) that people high in openness to experience do not turnover more often than anyone else. Perhaps more interestingly, turnover is just one workplace outcome that openness to experience logically could predict, but empirically does not.

Consistent with prior research, one study conducted by Timmerman (2006) found that the factor of openness to experience did not predict turnover. Inconsistent with previous studies, Timmerman (2006) also analyzed the relationship between the facets of openness to experience, which led him to find that one of the two sub-factors of openness to experience did predict turnover. Timmerman's (2006) finding may suggest that openness to experience is too general to measure specific workplace outcomes.

Much of the current literature on openness to experience uses the construct at the broad, factor level (Griffin, B., & Hesketh, B., 2004), but openness to experience may be a better predictor of workplace outcomes if it were separated into smaller segments. Timmerman's (2006) findings may imply that the non-predicting facets within openness to experience may be diluting the overall relationship between the predicting facets and turnover.

The present study suggests that openness to experience would be a better predictor of workplace outcomes if it was measured using its two, more specific, parts. This paper will begin with a review of openness to experience and move on to a discussion of turnover. The openness to experience review will first, describe openness to experience in some detail, then, discuss issues with openness to experience predicting in the workplace, and finally, propose an explanation for why openness to experience is a poor predictor in the workplace. The turnover review will first, describe turnover and some issues with measuring turnover, then it will discuss why the present study used tenure and turnover intention as proxy measures of turnover rather

than using turnover itself.

Openness to Experience

Description.

Definition. Openness to experience is one personality trait in McCrae & Costa's (2011) Five Factor Model (FFM) of personality traits. People who score high on openness to experience may enjoy new experiences in their own minds, in the world outside, and can be more attentive to their own emotions (McCrae & Costa, 2011). McCrae & Costa (2011) describe people who are high in openness to experience as having one or many of the following traits: "active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, intellectual curiosity, and independence of judgment." Openness to experience is just one of the contributing factors in the FFM which has been successful at predicting various workplace occurrences.

Researchers have been successfully predicting workplace outcomes using a measure based on the FFM, called the Neuroticism Extraversion Openness Personality Inventory (NEO-PI, Costa, P. T., & McCrae, R. R., 2011). The NEO-PI's measure of the FFM traits has successfully predicted workplace outcomes including: workplace performance, training outcomes, job satisfaction, and job proficiency for social jobs (Barrick, M. R., & Mount, M. K., 1991; Judge, T. A., Heller, D., & Mount, M. K., 2002; Schmidt, F. L., & Hunter, J. E., 1998).

Just as the FFM is divided into five factors, authors have divided openness to experience factor in a couple of ways (DeYoung, Quilty, & Peterson, 2007; McCrae & Costa, 2011). The FFM's division of openness to experience into six facets is one separation that will be discussed in the next section followed by a discussion of the Big Five Aspect Scale's division of openness to experience into two sub-factors.

Openness to experience facets

The FFM's division of openness to experience leaves the factor with six facets. The facets within openness to experience are: Fantasy (O1), Aesthetics (O2), Feelings (O3), Actions (O4), Ideas (O5), Values (O6; McCrae, R. R., & Costa, P. T., 2011).

Table 1.
Adjective of the Factor and Facets of Openness to Experience

	Openness to Experience					
Facet	O1: Fantasy	O2: Aesthetics	O3: Feelings	O4: Actions	O5: Ideas	O6: Values
Adjectives	• Dreamy • Imaginative • Humorous • Mischievious • Idealistic • Artistic • Complicated	• Imaginative • Artistic • Original • Enthusiastic • Inventive • Idealistic • Versatile	• Excitable • Spontaneous • Insightful • Imaginative • Affectionate • Talkative • Outgoing	• Interests Wide • Imaginative • Adventurous • Optimistic • Mild* • Talkative • Versatile	• Idealistic • Interests Wide • Inventive • Curious • Original • Imaginative • Insightful	• Conservative* • Unconventional • Cautious* • Flirtatious

Note. Table provided by McCrae, R. R., & Costa, P. T. (2011). NEO Inventories (pp. 2, 22, & 23). Asterisks (i. e., "*") indicate negatively coded items

Facet descriptions. Fantasy (O1), Aesthetics (O2), and Feelings (O3) describe the more artistic personality facets within openness to experience where as Actions (O4), Ideas (O5), and Values (O6) describe more intellectual personality facets. The first three facets of openness to experience (i. e., Fantasy, Aesthetics, and Feelings) describe people who enjoy day dreaming and have elaborate imaginations (O1, Fantasy), are emotionally affected by many forms of art (O2, Aesthetics), and are connected to and aware of their emotions (O3, Feelings).

The second three facets of openness to experience (i. e., Actions, Ideas, and Values) describe intellectually curious people who enjoy new experiences and doing new things (O4, Actions), thinking philosophically and taking new perspectives (O5, Ideas), and thinking about new moral and political perspectives (O6, Values). When all six facets are combined, they

describe the overall factor of openness to experience.

   A two sub-factor solution. One FFM alternative is called the Big Five Aspects Scale (BFAS; DeYoung, Quilty, & Peterson 2007). The BFAS uses the same five factors that the FFM uses, but the BFAS separates each factor into two sub-factors rather than six facets per factor like the FFM.

The Big-Five Aspects Scale

   The BFAS separates openness to experience into two sub-factors called "openness" and "intellect" (DeYoung, Quilty, & Peterson, 2007). The two sub-factors within the BFAS representation of openness to experience are made by combining the first three of the six facets of openness to experience from the FFM into the "openness" sub-factor. The last three of the six facets of openness to experience from the FFM are joined together to make the "intellect" sub-factor.

   O1-3 description. The first three facets of openness to experience within the FFM (i. e., Fantasy, Aesthetics, and Feelings) represent the "openness" sub-factor in the BFAS (Nusbaum & Silvia, 2011). The first three facets of openness to experience are Fantasy (O1), Aesthetics (O2), and Feelings (O3). DeYoung, Quilty, & Peterson (2007) combined and categorized those three facets of openness to experience into their "openness" sub-factor within the larger, openness to experience factor.

   O1-3 hang together. The "openness" sub-factor within the BFAS has been empirically demonstrated using the FFM's six-facet representation. Nusbaum and Silvia (2011) found that the first three facets of openness to experience in the FFM are related with each other as is suggested by the BFAS. These findings show that one of the two BFAS sub-factors, called "openness," occurs in other models of personality.

O4-6 description. The second group of three openness to experience facets within the FFM (i. e., Actions, O4, Ideas, O5, and Values, O6) represents the "intellect" sub-factor of openness to experience within the BFAS (Nusbaum & Silvia, 2011).

O4-6 hang together. The "intellect" sub-factor within the BFAS is related to the second group of three openness to experience facets with the FFM (i. e., Actions, O4, Ideas, O5, and Values, O6). Nusbaum and Silvia (2011) found that the fourth, fifth, and sixth facets of openness to experience in the FFM are related to each other. The relationship between these facets shows that the second BFAS sub-factor, called "intellect" occurs in other models of personality.

The openness to experience factor seems to be a useful construct for describing people, but researchers have found that openness to experience describes people in a way that is not as useful as it might seem for predicting outcomes in the workplace.

Openness to experience does not predict workplace outcomes

The relationship between the factor of openness to experience and workplace outcomes has been widely examined (Barrick, Mount, & Judge, 2001; Griffin, B., & Hesketh, B., 2004; Mussel, P., Winter, C., Gelleri, P., & Schuler, H., 2011; Salgado, J. F., 1997; Salgado, J. F., 2002; Timmerman, T. A., 2006). Much of the literature on openness to experience in the workplace has shown that openness to experience is generally unrelated to many workplace outcomes.

Why does openness to experience not predict workplace outcomes?

The present study will attempt to show that openness to experience is too broad to be a good predictor in the workplace and that openness to experience would more successfully predict workplace outcomes if it was split into two sub-factors. The next few sections will describe the three facets that Timmerman (2006) found to be related to turnover. The three facets Timmerman

(2006) found to be related to turnover can be combined to align with the one of the two sub-factors of openness to experience in another model of personality.

This paper will first present evidence that facets within openness to experience have been found to predict workplace outcomes that the factor of openness to experience has not been found to predict. Next, the paper will present research showing that the FFM model facets of openness to experience predict the same workplace outcomes as the two sub-factor representation of openness to experience. Then, this paper will present a model of openness to experience (Big Five Aspect Scale; BFAS) that combines the three facets found to be related to turnover in the Timmerman (2006) study. Next, this paper will show that both sub-factors of openness to experience can each represent three facets within openness to experience in the FFM as was used in the Timmerman (2006) study. Finally, the paper will propose one reason that the factor of openness to experience does not predict workplace outcomes though one of the two sub-factors in the proposed model does.

The factor-level may be too broad

The creators of the FFM have divided the openness to experience factor into six facets, however, another way to separate the openness to experience factor is into two sub-factors. We suggest that the two sub-factor division of openness to experience would both be specific enough and broad enough to predict workplace outcomes.

People Usually Use the Factor, not the Facets

There are a lot of important decisions to make when choosing to analyze personality. Decisions including, which model to use and whether to use the factor, sub-factor, or the facet level may be the difference between rejecting and failing to reject a hypothesis. Many studies conducted in the workplace simply measure personality at the factor level rather than the facet

level (Barrick, Mount, & Judge, 2001; Costa, P. T., McCrae, R. R., & Holland, J. L., 1984; Salgado, J. F., 1997; Salgado, J. F., 2002).

The next sections will initially present some evidence that the facets of openness to experience are better predictors in the workplace than has been shown for the factor of openness to experience. Then, the sections will assert one possible reason why combining the subdivisions of openness to experience into the factor weakens the effect of potentially predicting subdivisions.

Timmerman (2006) found that the openness to experience factor does not predict. One study shows how important choosing the correct personality measure can be. Timmerman (2006) analyzed the relationship between the factor and facet level of openness to experience as they relate to turnover. Timmerman (2006) found that the openness to experience factor and three of the facets related to the BFAS's "intellect" sub-factor did not predict turnover, but that the three facets related to the BFAS's "openness" sub-factor did predict turnover. Timmerman's (2006) findings show the importance of measuring openness to experience at the subdivided, facet or sub-factor, level.

Others found that three facets predict while the other three do not predict. The factor of openness to experience has failed to predict performance as well as turnover, but a few other studies that used facets of openness to experience show that the facets predict both performance and turnover. In the first study, Griffin and Hasketh (2004) factor analyzed openness to experience in a performance context and found that two sub-factors emerged, which aligned with the BFAS representation of the openness to experience sub-factors. Griffin and Hasketh (2004) found that both sub-factors had different relationships with performance such that the sub-factor "openness" had a negative relationship with performance, where as the sub-

factor "intellect" had a positive relationship with performance.

Similar to Griffin and Hasketh's (2004) findings, a more recent study found that the "intellect" sub-factor of openness to experience and the "openness" sub-factor functioned differently in another performance context. Mussel, Winter, Gelleri, and Schuler (2011) found that "intellect" predicted job and academic performance whereas, the "openness" sub-factor and the openness to experience factor did not predict job or academic performance.

Sub-factors influence the combined outcome. In summation, these studies show some support for the idea that the facets of openness to experience should be separated into two groups and analyzed separately in the workplace. Timmerman's (2006), Griffen & Hasketh's (2005), and Mussel, Winter, Gelleri, & Schuler's (2011) findings may indicate that the facets and sub-factors of openness to experience may dilute the overall effect of relationships occurring within the factor of openness to experience.

Sub-factors suppress each other's affects when combined. The present study suggests that openness to experience may be a better predictor of workplace outcomes if the "openness" and "intellect" sub-factors were measured individually as they may be impeding each other's effects when combined. The factor of openness to experience is a sum of the facets within it. The sum of a sub-factor that predicts a workplace outcome and a sub-factor that does not may be suppressing some of the predictive findings one of the sub-factors may have had otherwise.

The factor is sum of the sub-factors. The factor of openness to experience is a sum of the sub-factors within it (McCrae & Costa, 1987). The present study tested all of the hypotheses using a weighted-linear combination method rather than a simple equal-weighted sum. This weighted linear combination method allowed us to show whether or not the sub-factors can predict our turnover proxies, even when combined, though openness to experience. This method

allows us to test relationships that otherwise may be overlooked by using two advantages of the weighted linear combination method.

First, the weighted linear combination method allowed us to find the best way to combine sub-factors to predict proxy measures of turnover. Openness to experience is a weak predictor in the workplace as has been show previously. This method enabled us to show that certain sub-factors within openness to experience to experience could predict turnover proxies if the sub-factors were weighted differently.

Second, this method revealed which sub-factors were contributing to the overall model intended to predict turnover proxies and which sub-factors were not contributing, without degrading the overall predictive potential of the model.

This method allowed us to discern between the sub-factor that contributed to predicting proxy measures of turnover and which sub-factor did not. The typical, summing approach of combining sub-factors into the larger openness to experience factor ignores the predictive power of the sub-factor as it uses an equally weighted combination method.

Hypotheses

The present study suggests that even though one of the sub-factors of openness to experience would predict our turnover proxies, the weighted-linear combined factor of openness to experience does not predict turnover proxies without the predictive sub-factors. We tested this concept using two hypotheses applied to the full sample and an employed-only portion of the sample.

Hypothesis one states that the sub-factor, "intellect" fails to predict two proxy measures of turnover unless the "openness" sub-factor is added into the model. Hypothesis two states that the "openness" sub-factor successfully predicts two turnover proxies regardless of whether or not

the "intellect" sub-factor is in the model.

We tested our first hypothesis by comparing the model of the "intellect" sub-factor to the model of the "intellect" and "openness" sub-factors combined when predicting our proxy measures of turnover (see *Table 2.*). Specifically, we tested to see if "intellect" (i. e., Actions, O4, Ideas, O5, and Values, O6) failed to predict our proxy measures of turnover; tenure (hypothesis 1a) and turnover intention (hypothesis 1b). Then, we added the "openness" (i. e., Fantasy, O1, Aesthetics, O2, and Feelings, O3) sub-factor into the model along with "intellect" to test if the model changed from non-significant to significant for tenure (hypothesis 1c) and then for turnover intention (hypothesis 1d). Finally, we tested to see if there was a statistically significant change in the model when "openness" was added in to predict tenure (hypothesis 1e) and turnover intention (hypothesis 1f).

Table 2. Hypothesis 1.
Hypothesis 1: "Intellect" fails to predict tenure and turnover intention without the "openness" sub-factor.

Hypothesis	Description
1a	"Intellect" will fail to predict tenure.
1b	"Intellect" will fails to predict turnover intention.
1c	"Intellect" and "openness" will significantly predict for tenure when combined.
1d	"Intellect" and "openness" will significantly predict for turnover intention when combined.
1e	There will be a significant change in the "intellect" model when "openness" is added in to predict tenure.
1f	There will be a significant change in the "intellect" model when "openness" is added in to predict turnover intention.

Hypothesis two states that the "openness" sub-factor predicts our proxies of turnover whether or not "intellect" is included in the model (see *Table 3.*). Hypothesis two is the same as hypothesis one with two exceptions. First, hypothesis two used "openness" in the initial step of the model with both tenure and turnover intention, rather than using "intellect" in the initial step

like hypothesis one. Second, we omitted the sub-hypotheses regarding the model changing from non-significant to significant when the second sub-factor is added in. Hypothesis 2a and 2b state that "openness" should significantly predict both tenure and turnover intention, so the model cannot become significant when "intellect" is added in.

We tested this model to see if "openness" alone (i. e., Fantasy, O1, Aesthetics, O2, and Feelings, O3) predicts tenure (hypothesis 2a) and turnover intention (hypothesis 2b). Finally, we predicted that there would not be a significant change in the model when "intellect" is added into the model to predict tenure (hypothesis 2c) and turnover intention (hypothesis 2d).

Table 3. Hypothesis 2.
Hypothesis 2: The sub-factor "openness" predicts tenure and turnover intention without the "intellect" sub-factor.

Hypothesis	Description
2a	"Openness" will predict tenure.
2b	"Openness" will predict turnover intention.
2c	There will be a non-significant change in the "openness" model when "intellect" is added in to predict tenure.
2d	There will be a non-significant change in the "openness" model when "intellect" is added in to predict turnover intention.

Support for these hypotheses would present some evidence that the "openness" sub-factor can predict two proxy measures of turnover and that the "intellect" sub-factor within the openness to experience factor should be excluded when measuring the relationship between the sub-factors of openness to experience, turnover intention, and tenure.

Sample Partitioning

We used both our full sample of employees and students, as well as just the employed portion of our sample, omitting students. We were concerned that the large student portion of our sample would affect our measures of tenure and turnover intention. Students were included in the

full sample because it is possible that having students in the sample along with employees would not affect the overall findings, but we suspected that using students could lead to spurious or misleading results for three reasons.

First, collecting data from students include lack of experience, second, the limited nature of internships, and third, adult learners seeking a degree with the intention to leave their job for a job suiting their new degree. The first issue is that student's may not have had a job or internship. This would leave the students unable to complete the tenure and turnover intention measures. This issue could lead to incomplete or inaccurate tenure and turnover intention data.

The second issue is that students with internships may not have the same tenure and turnover intention results given the terminal nature of internships. Many internships are terminal or are intended to lead to a non-internship position with the organization, making the nature of the intern position intentionally terminal. The terminal nature of internships could lead students to having higher degrees of turnover intention as they would have to turnover from their current position to be promoted or to advance their careers using the internship experience. Internships may also lead to shorter tenures because internships often have clearly defined termination dates when the employer could choose to hire let the intern go or hire them into another position.

Finally, some students may have been furthering their education as adults after having already started their careers. These adult learners may have higher measures of turnover intention for their current position because they hope to be promoted or find a job fitting their degree once they graduate.

These concerns led us to apply our hypotheses to both the full sample as well as a subsample consisting of only employees and omitting students.

So far, this paper has reviewed openness to experience, illustrated that openness to

experience does not predict as well as it is expected to, and suggested one explanation why openness to experience fails to be a better predictor in the workplace in general. The next section will describe one specific workplace outcome that the factor of openness to experience may be able to predict, but does not.

Turnover

Why is turnover important?

Turnover is expensive and frequent. One expensive workplace outcome that openness to experience does not predict, yet one of the sub-factors of openness has been found to predict, is turnover. Turnover occurs when an employee leaves an organization for any reason (Macy, B. A., & Mirvis, P. H., 1976). Turnover is important because it is a common workplace occurrence, yet it is also a costly one (Cascio, 1991; Costigan, Insinga, Berman, Kranas, & Kureshov, 2012) that negatively affects workforce performance (Shaw, J. D., Gupta, N., & Delery, J. E., 2005).

Turnover is an expensive problem for organizations. Organizations typically experience turnover rates of twelve percent, which costs the organization between 93 percent and 200 percent of each employee's salary (Cascio, W. F., 1991, p. 25, Johnson, A. A., 1995). Turnover costs include separation costs (e. g., exit interviews), replacement costs (e. g., employment medical examinations), and training costs (Cascio, W. F., 1991, p. 26).

Turnover is a major expense for any organization when each employee who leaves costs the organization as much or double his/her salary, but it may not be an issue if only one or two employees turnover each year. Turnover is a particularly troublesome issue because it happens at a much higher rate than one or two employees per year (Cascio 1991, p. 23). The average turnover rate means that in an organization with one thousand employees has, on average, 120 employees leaving yearly. Multiply the number of turnover events by the average salary of the

exiting employees and you have a conservative estimate of your cost of turnover. Turnover is an especially important issue for bigger organizations where decreasing turnover, even just to eleven percent, may mean millions of dollars saved every year.

Though turnover has negative attributes, purely presenting the view that all turnover is bad would be an oversimplification of a concept that has been studied for over 50 years (Fleishman & Harris, 1962). For instance, Abelson & Baysinger (1984) present the concept of two types of turnover, optimal and dysfunctional. This concept suggests that some turnover events can benefit the organization (i. e., optimal turnover), while others negatively impact the organization (i. e., dysfunctional turnover). Regardless of the type of turnover event, research has shown that turnover, in a general sense, negatively impacts organizations (Cascio, 1991; Costigan, Insigna, Berman, Kranas, & Kureshov, 2012; Shaw, J. D., Gupta, N., & Delery, J. E., 2005).

Problems with turnover

In order to decrease turnover, a turnover baseline should be collected by anyone studying the subject. Turnover has proven to be quite difficult to measure due to several basic problems inherent in the turnover construct. Turnover is difficult to study because it is a low-base-rate occurrence (Steel, R. P., & Griffeth, R. W., 1991) and data is typically inaccurate (Campion, M. A., 1991).

Low base rate event. The first issue with measuring turnover is that it is a low-base rate event (Hulin, 1991). Low-base-rate events are infrequent occurrences, so though turnover can be so frequent as to be costly for an organization, it would reduce a sample size from nearly 100% of participants who can be used in a study to 12%. Low-base-rate events reduce the pool of potential events the research can sample, leading to lower sample sizes. Without a large sample

size, the study may have lower statistical power (Glass, G. V., & Hopkins, K. D., 1970, p. 266). Low-base-rate events are problematic for the statistical aspect of research, but another issue with turnover causes concern for the accuracy of the input data.

   Typically inaccurate. The second issue with measuring turnover is that turnover is typically measured inaccurately. Turnover is measured inaccurately because first, the data was collected by another person, making the data archival, and second, the data is often dichotomous (Campion, M. A., 1991).

   Archival. The first reason turnover is typically inaccurate is because it is archival. Archival data is data that the researcher does not collect, but rather the data collected by an outside source and given to the researcher. The issue with someone else collecting the data is that the researcher has no ability to disclose specifics on how the data was collected. There are three specific issues that can occur when researchers use archival data. First, the data may be recorded inaccurately, second, it may be biased, and third, it may be incomplete.

   Inaccurate data is a particularly menacing issue for researchers because they do not know if the inaccurate data is the reason for the research findings or if the findings are genuine. For instance, if a researcher receives a dataset and finds out that the data is inaccurate, the next question may be, "what part of the data is inaccurate and how can I fix the inaccuracy?" The researcher may be in trouble because just knowing what part of the data is inaccurate may be impossible to separate from the accurate parts of the data. Then, the researcher still must know what the accurate data would be if it were accurate so the inaccurate data can be replaced. The data will always be questionably inaccurate without the arduous process of finding and correcting inaccuracies in the data.

   The second issue with archival data is that the data could be biased. Biased data is just as

problematic as inaccurately recorded data because the data is inaccurate due to bias rather than error. Biased data suffers from the same questions in the researcher's mind of, "what part of the data is inaccurate and how can I fix the inaccuracy?" Biased data is just as useless as inaccurate data because the researcher cannot know what part of the data is unbiased or how to fix the bias within the data.

The final, and perhaps least menacing, issue with archival data is incomplete data. Incomplete data is a more obvious error than inaccurately recorded or biased data because the issue can be easily identified yet the researcher still does not know how to replace the incomplete data points.

The researcher can either replace the missing data points using one of a couple statistical methods, or the researcher can choose not to replace the data. The statistical method to replace the missing data points can allow for larger sample sizes using an estimate of what the missing data points may have been. The issue with using statistical replacement methods is that no method can replace missing data points with the respondents' exact answer. A more appropriate solution may be to simply leave the missing data points as missing. Missing data can be ignored in some statistical programs so the statistical tests can run only using the exact data points as the respondents entered them. The issue with missing data points is that losing data from an already low base rate occurrence may leave little or no information on the turnover event the researcher is intending to study. Incomplete data may be the least menacing of the issues with archival data, but archival data as a whole is only the first of the problems with inaccurate turnover data.

Dichotomous. Another factor contributing to the issue of inaccurate turnover data is the problem of dichotomous data. Dichotomous data is a way of recording information that reduces the recordable options to either a zero or a one. For instance, dichotomous data is used in

turnover data collection to represent, "yes, this employee turned-over," represented as a one, or "no, this employee did not turnover," represented as a zero. Dichotomous data is an issue because it provides less information.

Less information limits the researcher to only looking at the data that is presented. With turnover, there is a lot more potentially useful information that can be contributed to the dataset, yet cannot be recorded as a simple one or zero. For instance, dichotomous data can classify turnover as a turnover event or not a turnover event, but it cannot include further turnover classifications such as if the employee was fired or if the employee quit. Another classification of turnover is optimal and dysfunctional turnover (Abelson & Baysinger, 1984). Both optimal and dysfunction turnover fall under the "turnover" category, but neither classification is articulated by a simple "yes, this is a turnover event" or "no, this is not a turnover event."

Turnover is an important construct for organizations to try and control, but direct turnover measures are problematic. One way to avoid the problematic measurement of turnover is by using indirect, but related, methods of measuring turnover such as turnover intention and tenure.

Turnover Intention

Why is it better than turnover?

One less problematic way to measure turnover is by using turnover intention as a proxy to measure an employee's desire to quit. Turnover intention does not suffer from the same problems that turnover does, including low-base-rate issues and inaccurate data, yet turnover intention is related to turnover.

Everyone can report turnover intention (not low base rate). Turnover intention does not have the same issues that turnover has with being a low-base-rate event. Everyone can report

some degree of turnover intention because it measures one's degree of intention to quit rather than if they quit. Issues with low-base-rate events that turnover intention avoids includes issues with low power.

Turnover intention avoids a disadvantage of being a low-base-rate event, which, in turn, avoids issues with low power. Turnover intention helps to avoid these issues by allowing for a bigger pool of participants. Everyone can report some degree of turnover intention that is not limited by requiring the participants to have either turned over or not.

Questionable data. Another issue with turnover that turnover intention avoids is inaccurate data. Unlike turnover, the researcher can collect turnover intention measures using items that are not dichotomous.

Collected first hand (not archival). Turnover intention avoids issues with archival data, which makes turnover intention easier for the researcher to collect than turnover.

Turnover intention avoids issues with inaccurate recording, bias, and incomplete data, which are all issues that turnover has. Easy data collection means that researchers can collect the data themselves rather than relying on someone else to provide data, which, in turn, fixes problems with inaccurate recording, bias, and incomplete data.

Turnover intention is polytomous, which avoids the issues with dichotomous data that turnover has. Polytomous data can be recorded using a range of numbers unlike dichotomous data, which can only be recorded using a limited, one or zero, range of numbers. Polytomous data provides more information about the data that is less limited.

The first important difference between dichotomous data and polytomous data is that polytomous data provides more information. For example, turnover intention can be recorded as some degree of turnover intention rather than, "do you plan to turnover" or "do you not plan to

turnover." In this example, a degree of turnover intention allows for flexibility in that a turnover intention scale can be a dichotomous two-point Likert-type measure or a polytomous seven-point Likert-type scale. The polytomous seven-point scale would provide five additional degrees of separation over the dichotomous two-point scale between people who certainly intend to turnover and people who certainly do not intend to turnover.

The difference between some degree of turnover intention and the dichotomous turnover event means that the researcher has more information with polytomous data. Polytomous recording of turnover intention gives researchers ways to compare people showing more incremental differences. On the other hand, dichotomous data can only compare the person who turns over to the person who does not turnover.

Correlated with turnover

Turnover intention is correlated with turnover ($\rho = .38$; Griffeth, R. W., Hom, P. W., Gaertner, 2000) and prior turnover models have used turnover intention as an analog (Griffeth, Hom, Gaertner, 2000; Mobley, Griffeth, Hand, Meglino, 1979).

Turnover intention is one measure that improves on direct measures of turnover. Another measure that is related to turnover and further improves on turnover is tenure.

Tenure

Define

Tenure is a measure of how much time an employee has been with one organization. Tenure is a different measure of turnover that has all the same advantages of turnover intention. Tenure and turnover intention both predict turnover and both improve on turnover for three reasons; they are easily collected, they are polytomous, and neither are low-base-rate events. Tenure further improves on turnover as tenure is simple but related to turnover.

Related to Turnover

Tenure is similar to turnover intention because both share a relationship to turnover. Just as turnover intention predicts turnover, tenure also predicts turnover between, $\rho = -.22$ and $r = -.30$ (Arnold, & Feldman, 1982; Giffeth, Hom, & Gaertner, 2000).

Improvements on Turnover

Tenure improves on turnover in the same three ways that turnover intention improves on turnover. First, tenure avoids issues with archival data as the researcher can collect tenure data with a survey about how long individuals have been with their organizations. Second, tenure is polytomous, which gives more information and a more complete picture. Tenure is polytomous as "number of years with an organization" requires more than a "yes" or "no" response. Finally, tenure is not a low-base rate event as everyone who has worked can report tenure with an organization; whether, that person was with an organization for one day, two months, or three decades.

Tenure is simple. Tenure has the same advantages over turnover that turnover intention has, but tenure has two additional advantages over turnover intention. These advantages are that tenure is simple and it is a single, demographic measure allowing for unambiguous measuring.

A single measure, demographic measure. The first advantage to tenure is that tenure is simple and unambiguous. The second advantage of using tenure is that it can be measured using a demographic question about how long the employees have been with their respective organizations (Arnold & Feldman, 1982).

Tenure is simple because it can be measured using a single, demographic question that is answered the same regardless of how it is asked. For example, employees could be asked, "How long have you been with Company X?" or "How long has it been since you started here with

Company X?" Regardless of which question was asked, the answer would be the exact same for both questions because tenure is a demographic measure.

We will use both tenure and turnover intention as proxy measures of turnover. These independent measures do not replace the need for a turnover measure, tenure and turnover intention can provide some initial idea if there could be a relationship between sub-factors of openness to experience and turnover while being more feasible to measure than turnover directly.

The present study will attempt to find a relationship between sub-factors of openness to experience, tenure, and turnover intention. Broadly, the present study intended to show that the sub-factors of openness to experience could still be useful in predicting outcomes in the workplace, though the factor of openness to experience may be too broad for workplace prediction.

Methods

Participants

We used a mixed sample of employees and students. Participants classified themselves as, students, part-time employees, full-time employees, or any combination of the three categories. Our full sample size included 119 participants. Students were 50% of the sample and employees working either part-time or full-time comprised 50% of the sample. Specifically, 43% of participants in the sample were full-time employees, students comprised 14% of the sample, part-time employees were 7%, students working part-time were 16% of the sample, students working full-time were 19% of the sample, and students working both part-time and full-time were 1% of the sample (see *Figure 1*).

Employment Status

Student, Part-Time, & Full-Time
1%

Student & Full-Time
19%

Student
14%

Part-Time
7%

Student & Part-Time
16%

Full-Time
43%
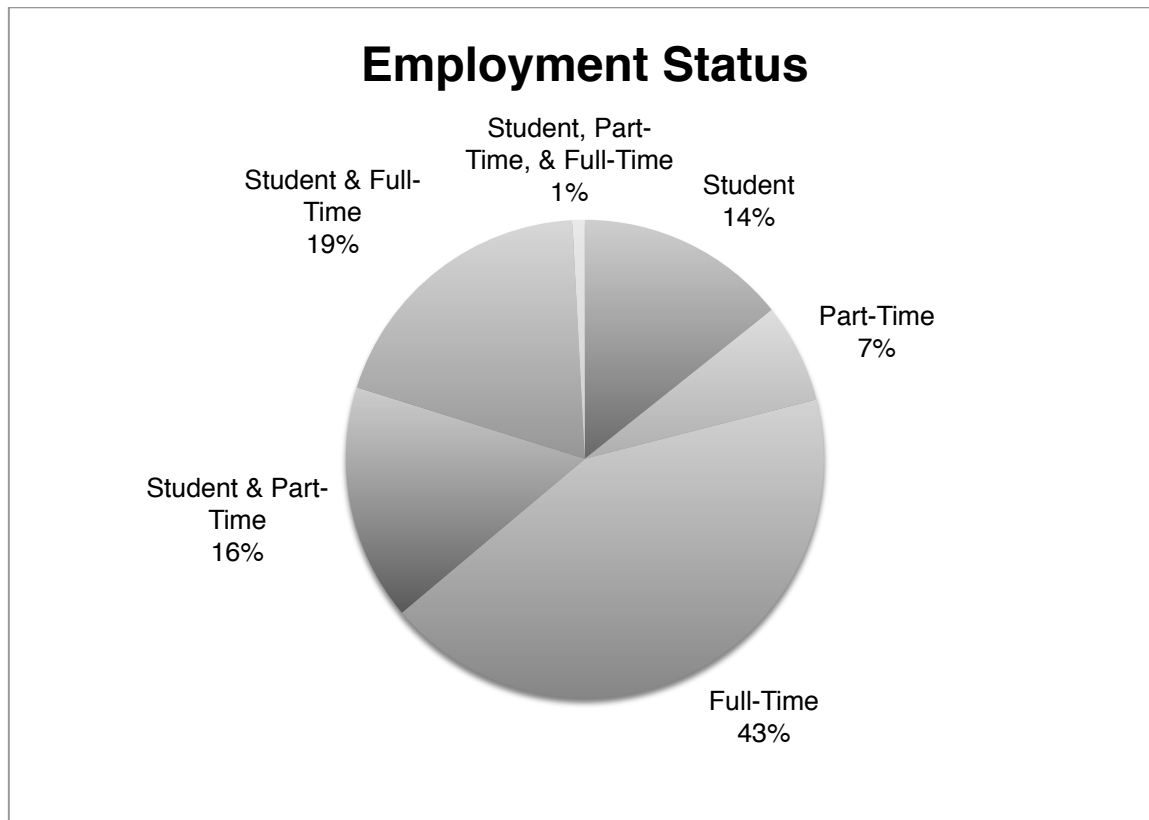
Figure 1. Full sample separated by employment status.

Our sample was 43.7% male and 56.3% female with an average age of 32.1 years, the average tenure was 4 years and 3.36 months, and the average number of companies that participants had been with in the past three years was 1.96 companies (see *Table 4.*).

We administered packets to participants who were instructed to mail the surveys in after they were finished. We excluded 19.3% of our sample for missing data, which left us with a sample size of $N = 96$.

Sample Partitioning

The present study applied all of the hypotheses to both the full sample and an employed only subsection of the full sample due to three concerns (see the hypotheses section) about having a large portion of students in the sample affecting measures of turnover intention and tenure. The first concern is that student's may not have had a job or internship, yet they would be

Table 4. Descriptive statistics for the full sample.

	N	Average	Standard Deviation	Minimum	Maximum
Sample Size	119				
Gender: Male		43.7%			
Female		56.3%			
Age		32.1	11.9	19	68
Companies in three years.		1.96	0.99	0	6
Tenure		51.36	66.93	0	303

Note. All ages are reported in number of years. All "companies in three years" are reported in the number of companies a participant has been employed at in the past three years. Tenure is reported in number of months.

included in the tenure and turnover intention measures. Second, terminal internships that students may have could affect the student's attitudes toward turnover and terminal internships would yield shorter tenure scores. Finally, adult learners are classified as students, but they may be returning to school with the intention to leave their current job when they receive their degree, affecting their turnover intention scores. Since these three concerns were not certain, we tested all of the hypotheses on both the full sample as well as the employee-only sample.

Measures

Personality

We measured personality using the printed version of the International Personality Item Pool's (Goldberg, 1999; IPIP) representation of the Neuroticism Extroversion Openness to Experience Personality Inventory Revised ($\alpha = 0.83$; Goldberg, 1999; NEO-PI-R). The IPIP's representation of the NEO-PI-R provided both factor and facet level measures of openness to experience. The IPIP's representation of the NEO-PI-R has sixty items rated on a five-point

Likert-type scale ranging from one (very inaccurate) to five (very accurate).

Tenure

We collected two demographic questions on tenure from Arnold & Feldman (1982). The first question was used as our only measure of tenure, while the second question was used exclusively for descriptive statistics.

The first question was, "How long have you been with your current organization?" Participants responded in the number of years and months. This question will be referred to as "tenure" for the remainder of the paper as it is the only item used for the results.

The second question was, "How many companies have you worked for in the past 3 years, including your current company?" This question is used for collecting demographic information only and was not combined in any way with the first question as it was only used for demographics.

Turnover Intention

We measured turnover intention using eight items, based on the Pearson/Reid London House Personnel Selection Inventory (PSI-7 ST). Participants rated items on a Likert-type scale ranging from one (very inaccurate) to five (very accurate). The items asked both, dispositional and behavioral questions such as, "I tend to be restless," and, " I would leave my current job if a better opportunity arose for a position in a different company." The eight turnover intention item scores were added together to create a single measure of turnover intention.

Analysis

We used four hierarchal multiple regressions to analyze the hypothesized relationships (see *Table 5.*). First, we tested to see if the "openness" sub-factor added significant predictability to the "intellect" sub-factor as it relates to tenure (the first hierarchal multiple regression, "model

1") and then for turnover intention (the second hierarchal multiple regression, "model 2") in

Hypothesis 1. Then, we tested to see if the "intellect" sub-factor failed to add significant

predictability to the "openness" sub-factor as it related to tenure (the third hierarchal multiple

regression, "model 3") and then for turnover intention (the fourth hierarchal multiple regression,

"model 4") in Hypothesis 2.

Table 5. Hierarchal Multiple Regression Used to Analyze Sub-Hypotheses

Hypothesis	Model	Criterion Variable	Sub-Hypotheses
Hypothesis 1	Hierarchal multiple regression 1	Tenure	H1a, c, e
	Hierarchal multiple regression 2	Turnover intention	H1b, d, f
Hypothesis 2	Hierarchal multiple regression 3	Tenure	H2a, c
	Hierarchal multiple regression 4	Turnover intention	H2b, d

Note. All criterion variables were measured against either the "openness" sub-factor, the "intellect" sub-factor, or both factors combined. All letters under the "Sub-Hypotheses" column represent the sub-hypothesis for the hypothesis in the same row under the "Hypothesis" column.

We will only discuss the hypotheses as they related to tenure because the same analyses

were performed for turnover intention. For instance, hypothesis 1a states that the "intellect" sub-

factor will fail to predict tenure. The same structure applies for hypothesis 1b were "intellect" is

hypothesized to fail to predict turnover intention, rather than tenure. Therefore, the next section

will only illustrate the relationships with the tenure criterion variable, but the same relationships

were tested for turnover intention.

The first hierarchal multiple regression included "intellect" in the initial step of our

hierarchal multiple regression ("model 1", see *Table 6.*) to see if the model failed to be significant

(Hypothesis 1a). We tested the relationship between "openness," "intellect," and tenure in the

second step of our hierarchal multiple regression ("model 1") to see if the model changed from

non-significant to significant when we added in "openness" (Hypothesis 1c). We tested the

relationship between "openness" and "intellect" in "model 1" by computing an r^2 change from step one to step two (Hypothesis 1e). We predicted in Hypothesis 1e that the r^2 change would be significant, which would indicate that "openness" adds significant predictive validity over "intellect" when predicting tenure.

Table 6.   Hierarchal Multiple Regression Used to Analyze Hypothesis 1

Hypothesis	Model	Step	Sub-Hypothesis	Predictor	Criterion Variable
Hypothesis 1	Hierarchal multiple regression 1	1	H1a	"intellect"	Tenure
		2	H1c	"intellect" & "openness"	
		Δr^2	H1e	"intellect" & "openness"	
	Hierarchal multiple regression 2	1	H1b	"openness"	Turnover intention
		2	H1d	"openness" & "intellect"	
		Δr^2	H1f	"openness" & "intellect"	

Note. The symbol Δr^2 represents the r^2 change from step one to step two.

Equation 1.

$$R^2_{Y.Intellect} = r^2_{YIntellect}$$

Equation 2.

$$R^2_{Y.Intellect\ and\ Openness} = r^2_{YIntellect} + sr^2_{YOpenness \cdot Intellect}$$

Equation 1 represents the first step in the hierarchal multiple regression equation used to report the variance due to "intellect" for hypothesis 1a. Equation 2 represents the second step in the hierarchical multiple regression equation used to report the variance due to both "intellect" and "openness" for hypothesis 1c. We computed an r^2 change to test Hypothesis 1e.

The terms in Equation 1 are represented as follows: "$R^2_{Y.Intellect}$" is the coefficient of determination for the "intellect" sub-factor and "$r^2_{YIntellect}$" represent the amount of variance explained by "intellect."

The terms in Equation 2 are represented as follows: "$R^2_{Y.Intellect\ and\ Openness}$" is the coefficient of determination for the combined effect of the "intellect" and "openness" sub-factors, "$r^2_{YIntellect}$" represent the amount of variance explained by "intellect" sub-factor, and "$sr^2_{Openness\cdot Intellect}$" represents the incremental variance explained by "openness" over the variance explained by "intellect."

We computed an r^2 change to test Hypothesis 1e. The r^2 change can indicate whether or not the model represented in Equation 1 undergoes a significant change in the proportion of variance explained when "openness" is added into the model (expressed in Equation 2).

The second hierarchal multiple regression was computed the same way as the first, except with turnover intention as the criterion variable rather than tenure (see *Table 6.*).

The third hierarchal multiple regression included "openness" in the initial step of our hierarchal multiple regression ("model 3", see *Table 7.*) to see if the model would be significant (Hypothesis 2a). We did not test the relationship between "openness," "intellect," and tenure in the second step of our hierarchal multiple regression ("model 3") as we already hypothesized that the model will be significant, so it would still be significant in the second step. We tested the relationship between "openness" and "intellect" in "model 3" by computing an r^2 change from step one to step two (Hypothesis 1c). We predicted in Hypothesis 1c that the r^2 change would be non-significant, which would indicate that "intellect" does not add significant predictive validity over "openness" when predicting tenure.

Table 7. Hierarchal Multiple Regression Used to Analyze Hypothesis 2

Hypothesis	Model	Step	Sub-Hypothesis	Predictor	Criterion Variable
Hypothesis 2	Hierarchal multiple regression 3	1	H2a	"openness"	Tenure
		2	Not tested	"openness" & "intellect"	
		Δr^2	H2c	"openness" & "intellect"	
	Hierarchal multiple regression 4	1	H2b	"intellect"	Turnover intention
		2	Not tested	"intellect" & "openness"	
		Δr^2	H1d	"intellect" & "openness"	

Note. The symbol Δr^2 represents the r^2 change from step one to step two.

Equation 3.

$$R^2_{Y.Openness} = r^2_{YOpenness}$$

Equation 3 represents the first step in the hierarchal multiple regression equation used to report the variance due to "openness" for hypothesis 2a. We computed an r^2 change to test Hypothesis 2e.

The terms in Equation 3 are represented as follows: "$R^2_{Y.Openness}$" is the coefficient of determination for the "openness" sub-factor and "$r^2_{YOpenness}$" represent the amount of variance explained by "openness." Unlike hypothesis 1, we predicted that "openness" (rather than "intellect" in hypothesis 1) would significantly predict both tenure (hypothesis 2a) and turnover intention (hypothesis 2b) in hypothesis 2. We included the "intellect" factor in the second step of our hierarchical multiple regression, but since we hypothesized that the model would already be significant, we did not need to hypothesize that it would become significant, so we simply checked the change in the models, instead.

We computed an r^2 change to test Hypothesis 2c. The r^2 change indicates that the model represented in Equation 3 undergoes a significant change in the proportion of variance explained

when "intellect" is added into the model.

The fourth and final hierarchal multiple regression was computed the same way as the third, except with turnover intention as the criterion variable rather than tenure (see *Table 7.*).

Procedure

We printed and stapled together the personality test, tenure question, and turnover intention items into individual survey packets. One of the researchers asked over forty Roosevelt University faculty members and more than twenty executives for permission to administer surveys during class or work time. We administered surveys to participants during class or work time. Each survey packet included the survey and a self addressed, stamped envelope for participants to mail to the researcher when they complete the survey.

We entered and score the survey responses in IBM SPSS 20 using response keys for the IPIP's representation of the NEO-PI-R. We analyzed each hypothesis using hierarchical linear regression as described in the analysis section. This study has been approved by the Roosevelt University Institutional Review Board (IRB number: 2014-86).

Results

The next few sections will describe the psychometric properties of the measures used in the present study, results of the analyses on the full sample and the working sample, and a post-hoc power analysis of the working sample results. We conducted a post-hoc power analysis for turnover intention models in the working sample as there were marginally significant and significant results in those models.

Scale Psychometric Properties

Personality

We found that the reliabilities for all personality (see *Table 8.*) measures were above $\alpha =$

0.70 with openness to experience having the strongest reliability ($\alpha = 0.86$) followed by

"intellect" ($\alpha = 0.82$) and finally "openness" ($\alpha = 0.77$).

Table 8.   Openness to experience and sub-factor's psychometric properties.

	Number of Items	Alpha Reliability Coefficient	Scale Average by Item	Scale Standard Deviation by Item
Openness to Experience	60	0.86	3.69	0.42
"Openness"	30	0.77	3.85	0.53
"Intellect"	30	0.84	3.57	0.46

Tenure

Our measure of tenure significantly converged the other tenure-related question from

Arnold & Feldman (1982) as well as two other measures. The first question about the number of

years spent with an organization was used as our only measure of tenure. Employees in the full

sample had an average tenure of 51.36 months with a standard deviation of 66.93 months (see

Table 9.). Tenure had significant convergent validity with age ($p < 0.01$) and turnover intention

($p = 0.02$; see *Table 10.Table 10.Table 10.Table 10.*) as has been found in prior literature (Ng &

Feldman, 2012; Spencer, Steers, & Mowday, 1983). We also found that the number of

companies an employee has been employed within the past three years was significantly

correlated with our measure of tenure ($p < 0.01$; see *Table 10.*).

Table 9.   Tenure's psychometric properties.

	Number of Items	Alpha Reliability Coefficient	Scale Average by Item	Standard Deviation by Item
Tenure	1	-	51.36	66.93

Table 10. Tenure's correlations with age, number of companies, and turnover intention.

		Age	Number of Companies	Turnover Intention
Tenure	Correlation	0.60	-0.40	-0.22
	Significance	< 0.01	< 0.01	0.02

Turnover Intention

Our measure of turnover intention had an alpha reliability of $\alpha = 0.55$ (see *Table 11.*). The low reliability renders us unable to draw any conclusions from any of our findings using turnover intention.

Table 11. Turnover intention psychometric properties.

	Number of Items	Alpha Reliability Coefficient	Scale Average by Item	Standard Deviation by Item
Turnover Intention	8	0.55	2.71	0.84

Full Sample

The full sample yielded all non-significant results. Sub-hypothesis 1a and 1b asserted that there would be non-significant findings, so these sub-hypotheses were supported, but we rejected the remaining sub-hypotheses (i. e., hypotheses 1c through hypothesis 1f). We found that the first two sub-hypotheses within hypotheses 2 were not supported, but that hypothesis 2c and 2d were supported.

The only hypotheses that were supported for our full sample were the ones that hypothesized that there would be non-significant results. The purpose of these hypotheses was to show that adding "openness" into the non-significant model, would change the model from being non-significant to being significant. None of the hypotheses showed a change from non-significant to significant, so we cannot draw any conclusions from our hypotheses.

Hypotheses 1a and 1b were the only two sub-hypotheses within hypothesis 1 that were

supported. Hypothesis 1a predicted that "intellect" would fail to predict tenure and we found that the regression model between "intellect" and tenure was non-significant ($p = 0.62$). Similarly, hypothesis 1b predicted that "intellect" would fail to predict turnover intention and we found that the regression model between "intellect" and turnover intention was also non-significant ($p = 0.53$).

Sub-hypotheses 1c, 1d, 1e, and 1f were not supported. Sub-hypotheses 1c and 1d hypothesized that adding "openness" into the "intellect" tenure (sub-hypothesis 1c) and turnover intention (sub-hypothesis 1d) models would make the models become significant. Sub-hypothesis 1c presented a non-significant regression model ($p = 0.88$) as did sub-hypothesis 1d at, $p = 0.25$.

Finally, sub-hypotheses 1e and 1f hypothesized that there would be a significant change between the models when adding "openness" into the "intellect" tenure model (sub-hypothesis 1e) and turnover intention model (sub-hypothesis 1f). Sub-hypothesis 1e presented a non-significant change in the regression model at, $p = 0.95$, and sub-hypothesis 1d presented a non-significant change in the regression model ($p = 0.16$).

Hypothesis 1 within our full sample did not yield any significant results (see *Table 12.*). Sub-hypotheses 1a and 1b were supported, however the purpose of hypothesizing that "intellect" would fail to predict proxies of turnover was to show that the models became significant when "openness" was added in. Since our first hypothesis yielded no significant results, we cannot draw any conclusions using these results for this hypothesis in the full sample.

Table 12. Hypothesis 1 results with full sample.
Hypothesis 1: "Intellect" fails to predict tenure and turnover intention without the "openness" sub-factor.

Hypothesis	Description	Support
1a	"Intellect" will fail to predict tenure.	Supported
1b	"Intellect" will fails to predict turnover intention.	Supported
1c	"Intellect" and "openness" will significantly predict for tenure when combined.	Not Supported
1d	"Intellect" and "openness" will significantly predict for turnover intention when combined.	Not Supported
1e	There will be a significant change in the "intellect" model when "openness" is added in to predict tenure.	Not Supported
1f	There will be a significant change in the "intellect" model when "openness" is added in to predict turnover intention.	Not Supported

Hypotheses 2c and 2d were the only two sub-hypotheses within hypothesis 2 that were supported (see *Table 13.*). Hypothesis 2c predicted that there would be a non-significant change in the "openness" tenure model when "intellect" was added in, which was supported ($p = 0.70$). Similarly, hypothesis 2d predicted that adding "intellect" into the "openness" turnover intention model would yield a non-significant change, which was supported at, $p = 0.10$.

Sub-hypotheses 2a and 2b were not supported. Sub-hypotheses 2a and 2b hypothesized that "openness" would be significantly related to tenure (sub-hypothesis 2a) and turnover intention (2b). Sub-hypothesis 2a presented a non-significant regression model ($p = 0.75$) and sub-hypothesis 2b presented a non-significant regression model at, $p = 0.11$.

Similar to hypothesis 1, hypothesis 2 within our full sample did not yield any significant results (see *Table 13.*). Sub-hypotheses 2c and 2d were supported, however the purpose of hypothesizing that "intellect" would fail to create a significant change in the "openness" tenure (sub-hypothesis 2c) and turnover intention (sub-hypothesis 2d) models was to show that "openness" could predict tenure and turnover intention without "intellect" being added into the model. Since our second hypothesis within the full sample yielded no significant results, we

cannot draw any conclusions using these results.

Table 13.   Hypothesis 2 results with full sample.
Hypothesis 2: The sub-factor "openness" predicts tenure and turnover intention without the "intellect" sub-factor.

Hypothesis	Description	Support
2a	"Openness" will predict tenure.	Not Supported
2b	"Openness" will predict turnover intention.	Not Supported
2c	There will be a non-significant change in the "openness" model when "intellect" is added in to predict tenure.	Supported
2d	There will be a non-significant change in the "openness" model when "intellect" is added in to predict turnover intention.	Supported

Employed Sample

We reanalyzed our hypotheses using the exclusively employed (working) portion of our sample by removing all participants who indicated that they were students, even if they were also working full-time or part-time and going to school. We found non-significant results for all sub-hypotheses within hypotheses 1 and 2 except for sub-hypothesis 1d, 1f, and we found marginally significant results for sub-hypothesis 2b using the employed sample (see *Table 14.* and *Table 15.*). We did not find significant relationships for sub-hypotheses 1a, 1b, 1c, and 1e (see *Table 14.*). We found non-significant results for all of the sub-hypotheses within hypothesis 2 (see *Table 15.*). We found a marginally significant difference in sub-hypothesis 2d. Sub-hypothesis 2d had a marginally significant change in the model, but the initial model went from being non-significant without "openness" to significant with "openness."

We found support for sub-hypotheses 1a and 1b; similar to the full sample findings. We predicted that "intellect" would fail to predict tenure and turnover intention in sub-hypotheses 1a and 1b respectively. We found that both models were non-significant (tenure, $p = 0.95$; turnover intention, $p = 0.65$).

Hypothesis 1d predicted that the combined model of "openness" and "intellect" would significantly predict turnover intention. We found that the combined model of "openness" and "intellect" significantly predicted turnover intention at, $p = 0.05$, $R = 0.37$, which is a significant p value less than 0.05 before rounding up to the thousands place as is shown.

Hypothesis 1f predicted that the "intellect" turnover intention model would change significantly when "openness" is added into the model. We found that there was a significant change in the regression model where "intellect" predicted tenure when "openness" was introduced ($p = 0.02$, $\Delta R^2 = 0.13$).

Table 14. Hypothesis 1 with employed sample.
Hypothesis 1: "Intellect" fails to predict tenure and turnover intention without the "openness" sub-factor tested on the student sample removed.

Hypothesis	Description	Support
1a	"Intellect" will fail to predict tenure.	Supported
1b	"Intellect" will fail to predict turnover intention.	Supported
1c	"Intellect" and "openness" will significantly predict for tenure when combined.	Not Supported
1d	"Intellect" and "openness" will significantly predict for turnover intention when combined.	Supported
1e	There will be a significant change in the "intellect" model when "openness" is added in to predict tenure.	Not Supported
1f	There will be a significant change in the "intellect" model when "openness" is added in to predict turnover intention.	Supported

Sub-hypotheses 2c and 2d predicted that there would be a non-significant change in the "openness" tenure and "openness" turnover intention hierarchical multiple regression model when "intellect" was introduced. We found that there was a non-significant change in the "openness" tenure and a marginally significant change in the "openness" turnover intention

models when "intellect" was added in ($p = 0.70$; $p = 0.09$ respectively).

We found that sub hypothesis 2d had a marginally significant change in the model, however the model went from being marginally significant with "openness" attempting to predict turnover intention alone ($p = 0.07$) to being significant when "intellect" was added into the model ($p = 0.05$, which rounded up to the thousands place). We will discuss this non-hypothesized difference in the discussion section below.

Table 15.   Hypothesis 2 with employed sample.
Hypothesis 2: The sub-factor "openness" predicts tenure and turnover intention without the "intellect" sub-factor tested on the student sample removed.

Hypothesis	Description	Support
2a	"Openness" will predict tenure.	Not Supported
2b	"Openness" will predict turnover intention.	Not Supported
2c	There will be a non-significant change in the "openness" model when "intellect" is added in to predict tenure.	Supported
2d	There will be a non-significant change in the "openness" model when "intellect" is added in to predict turnover intention.	Supported

Note. The "p value" represents the value returned from our significance tests. "R" is the correlation coefficient for the regression model. The "ΔR^2" symbol is the change in coefficients of determination between regression models.

We found that none of our results were significant for the full sample including students. We found support for our hypotheses that predicted non-significant results, however the greater point of finding non-significance for hypothesis 1a, 1b, 2c, and 2d was intended to show that our model changed from non-significant to significant, which did not occur in the full sample. Our full sample provided us with no evidence that "openness" had any ability to predict turnover intention or tenure.

We removed students from our sample and tested our hypotheses again which led to more encouraging results. We found significant results for hypothesis 1d and 1f. Though we rejected

hypothesis 2b, the results were marginally significant. We found support for sub-hypotheses 1d

and 1f in addition to the hypotheses we found support for using the student sample (i. e.,

hypotheses 1a, 1b, 2c, and 2d; see *Table 16.*).

Table 16. Hypothesis Support Results for the Full Sample and the Employed Sample

Hypothesis	Full Sample Support	Employed Sample Support
1a	Supported	Supported
1b	Supported	Supported
1c	Not Supported	Not Supported
1d	Not Supported	Supported
1e	Not Supported	Not Supported
1f	Not Supported	Supported
2a	Not Supported	Not Supported
2b	Not Supported	Not Supported
2c	Supported	Supported
2d	Supported	Supported

Power Analysis

We conducted a power analysis on the employed sample for turnover intention only. The

turnover intention models had marginally significant and significant results.

Our power analysis showed that the current study achieved a power of, $\beta = 0.83$ ($n = 45$,

$k = 2, f^2 = 0.15$), for the combined model of "openness," "intellect," and turnover intention ($p =$

0.05) in the employed sample only. The sub-factors each had less power with tenure.

"Openness" and turnover intention had a power value of, $\beta = 0.47$ ($n = 45$, $k = 1$, $f^2 =$

0.06), as well as, $\beta = 0.16$ ($n = 45$, $k = 1$, $f^2 = 0.01$), for "intellect" and turnover intention. Both

"openness" and "intellect" were non-significantly correlated with turnover intention.

Turnover intention's low reliability ($\alpha = 0.55$) removes our ability to draw implications from any significant or marginally significant findings, including sub-hypotheses 1d and 1f.

Our discussion section will focus on these findings in the context of previous findings that have shown that openness to experience is a poor predictor in the workplace.

Discussion

The notion that sub-factors within openness to experience may predict proxy measures of turnover, was not supported. Findings from this study are consistent with findings from previous research in that openness to experience and its sub-factors are poor predictors in the workplace. This section will present the current study in the context of previous research findings, to ultimately suggest that openness to experience and the sub-factors within openness to experience are generally poor predictors in the workplace.

Present Study Findings

The current study tested several hypotheses intended to show that the "openness" sub-factor of openness to experience is a better predictor of two related measures used in the workplace. "Openness" failed to predict tenure in both the employed sample and the full sample collected.

All Non-Significant or Non-Tenable

Results from the full sample showed all non-significant relationships between "openness" and the proxy measures of turnover (i. e., tenure and turnover intention). These results were similar for the employed sample using tenure, but results using turnover intention in the employed sample did show some mixed, but untenable results. Turnover intention had a low reliability, of $\alpha = 0.55$, which yielded any significant or marginally significant findings, untenable.

The Full Sample Findings

The present study's full sample yielded all non-significant findings for both hypothesis 1 and hypothesis 2. Hypothesis 1 intended to show that "openness" would change the non-significant relationship between "intellect" and both proxy measures of turnover (i. e., tenure and turnover intention) into a significant relationship when "openness" was added into the hierarchical multiple regression models. Hypothesis 1 showed all non-significant relationships, indicating that "openness" did not significantly improve the "intellect" turnover intention and tenure models.

Specifically, hypothesis 1d showed a non-significant change from the "intellect" tenure model to the "intellect," "openness," and tenure model, $p = 0.16$, and hypothesis 1e showed a non-significant change from the "intellect" turnover intention model to the "intellect," "openness," and turnover intention model, $p = 0.95$.

Similarly, hypothesis 2 also yielded all non-significant findings in the full sample. Hypothesis 2 was intended to show that "openness" would significantly predict tenure and turnover intention while the second sub-factor of openness to experience (i. e., "intellect") would not significantly improve the "openness", tenure, and turnover intention models. This hypothesis first required "openness" to significantly predict turnover intention and tenure to show that the model was not significantly improved by "intellect." The full sample showed that "openness" did not significantly predict either turnover intention ($p = 0.11$) or tenure ($p = 0.75$) and "intellect" also failed to improve the predictability of the model.

The full sample used in the present study showed all non-significant relationships. These non-significant results lead to the conclusion that both sub-factors of openness to experience are not successful predictors of either tenure or turnover intention.

Employed Sample Findings

The present study analyzed also analyzed the employed portion of the collected sample to see if employed adults showed clearer relationships between sub-factors of openness to experience and the proxy measures of turnover. Results from the employed sample were more encouraging, however, these results did not provide any more conclusive evidence than the full sample. The next section will describe the present study's findings, first with tenure as the criterion variable, then for turnover intention as the criterion variable.

Tenure. The present study proposed that "openness" would predict tenure while "intellect" would not and that prediction would not be significantly improved when "intellect" was added into the hierarchical multiple regression model used to predict tenure (hypothesis 1a, 1c, 1e, 2a, and 2c). Neither "openness" ($p = 0.70$), "intellect" ($p = 0.95$), nor the linear combination of the two sub-factors ($p = 0.09$) predicted tenure in the present study.

Hypothesis 1 was intended to show that "openness" added significant predictability to a hierarchical multiple regression model using "intellect" to predict tenure and turnover intention. Similarly, hypothesis 2 was intended to show that "intellect" did not add significant predictability to the regression model using "openness" to predict tenure, then to predict turnover intention. The relationships using tenure as the criterion in hypothesis 1 and 2 showed all non-significant findings. These non-significant findings are consistent with the full sample findings for tenure in both hypotheses (hypothesis 1 and 2).

Specific findings regarding hypothesis 1 using tenure as the criterion measure were that "intellect" did not significantly predict tenure (see *Table 16.*), adding "openness" into the "intellect" tenure model, did not make the model significant (*Table 16.*). Logically following, "openness" did not significantly change the model between "intellect" and tenure (*Table 16.*).

Findings in hypothesis 2 using tenure as the criterion measures were that "openness" did not significantly predict tenure, though this relationship was hypothesized to be significant (*Table 16.*). Dissimilarly, "intellect" did not significantly change the model between "openness" and tenure, which is consistent to what was hypothesized (*Table 16.*).

All non-significant results regarding both "openness" and "intellect" trying to predict tenure is consistent with the notion that openness to experience is a poor predictor in the workplace. Though theses null results present evidence that runs contrary to this study's purpose, similar inconclusive evidence appeared in the hypotheses regarding turnover intention.

Turnover Intention. Many of the results for the hypotheses using turnover intention as the criterion variable in the employed sample were also non-significant, with few exceptions. The few significant results also yielded inconclusive evidence for any of the hypothesized relationships due to the unreliable turnover intention measure ($\alpha = .55$).

Mixed or Non-Tenable Results. The relationships using turnover intention as the criterion in hypothesis 1 and 2 showed mixed findings. Specific findings regarding hypothesis 1 using tenure as the criterion measure were that "intellect" did not significantly predict tenure, which was hypothesized (hypothesis 1b; $p = 0.65$). Similarly, adding "openness" into the "intellect" tenure model, was consistent with the relationship hypothesized, showing that the model of "intellect" and "openness" showed a significant relationship with turnover intention (hypothesis 1d; $p = 0.05$). Logically following, "openness" did significantly change the model between "intellect" and tenure (hypothesis 1e; $p = 0.02$). These findings supported the sub-hypotheses that "openness" significantly improves upon the model using only "intellect" attempting to predict turnover intention. Unfortunately, these significant findings are nullified by the unreliable measure of turnover intention ($\alpha = 0.55$).

Contrary to the findings in hypothesis 1, hypothesis 2 using turnover intention as the criterion measures showed all non-significant results. "Openness" did not significantly predict turnover intention though this relationship was hypothesized to be significant (hypothesis 2b; $p = 0.09$). "Intellect" did not significantly change the model between "openness" and turnover intention, which was consistent to what was hypothesized (hypothesis 1d; $p = 0.07$).

The mixed results regarding both "openness" and "intellect" trying to predict turnover intention still do not lead to any conclusive evidence that the sub-factor of "openness" predicts turnover intention, due to some null results and the unreliability of turnover intention ($\alpha = 0.55$). The present study's results directly conflict with the purpose of the study, but the results are consistent with previous research showing that openness to experience is a poor predictor in the workplace.

Previous Research

Previous research has shown that openness to experience is poor predictor of different workplace outcomes. The present study offers further evidence that openness to experience, at the sub-factor level, is a poor predictor in the workplace.

Openness to experience is a poor predictor in the workplace. This conclusion comes from both, the current study's findings as presented previously, as well as previous studies using openness to experience. This final section will highlight previous research that has shown that openness to experience is a poor predictor on two workplace outcomes, counter productive work behaviors and performance.

Counter Productive Work Behaviors

Relationships between openness to experience and counterproductive work behaviors (CWB's) have been mixed. We will discuss the mixed findings with openness to experience and

our CWB in focus, turnover, then we will discuss three more CWB's showing non-significant relationships with openness to experience.

Timmerman (2006) found that openness to experience failed to predict turnover, though the facets did predict turnover. The present study used the Timmerman (2006) study to suggest certain facets and sub-factors within openness to experience would predict proxy measures of turnover. The present study has offered no evidence to suggest that the sub-factors of openness to experience predict proxy measures of turnover any better than Timmerman (2006) found that the openness to experience factor predicted turnover.

Contrary to Timmerman's (2006) findings, Salgado (2002) found that openness to experience did predict turnover, but all of the other Five Factor Model (FFM) factors showed stronger relationships with turnover than openness to experience. Salgado (2002) conducted a meta-analysis showing a significant relationship between openness to experience and turnover ($\rho = 0.14$), though the relationship was not strong. Though this relationship between openness to experience and turnover was significant, all four of the other Big Five personality traits had stronger relationships with turnover ($\rho_{Conscientiousness} = 0.31$; $\rho_{Agreeableness} = 0.22$; $\rho_{Emotional\ Stability} = 0.35$; $\rho_{Extroversion} = 0.20$).

Furthering the evidence that openness to experience is a poor predictor in the workplace, Salgado (2002) also found that openness to experience was not significantly related to three separate CWB's. These CWB's include accidents ($\rho = -0.09$) absenteeism ($\rho = 0.00$) and deviant behavior ($\rho = -0.14$). One more widely studied relationship showing the same poor predictability of openness to experience in the workplace its relationship with performance.

Performance

The relationship between openness to experience and workplace performance has shown many times in prior research that openness to experience is a poor predictor of workplace performance. Barrick, Mount, & Judge (2001); Griffin & Hesketh (2004); Mussel, Winter, Gelleri, & Schuler (2011); and Salgado (1997) have all shown that openness to experience is a poor predictor of workplace performance.

Conclusion

Support for the notion that openness to experience would be a better predictor in the workplace if it was separated into sub-factors would improve its predictability was not supported in the present study. These findings are supported by previous research showing that the factor of openness to experience is a poor predictor in the workplace. We did not find a significant relationship between sub-factors within openness to experience and the workplace outcome of tenure and turnover intention. These consistent null findings suggest that openness to experience is poor predictors in the workplace.

References

Abelson, M. A., & Baysinger, B. D. (1984). Optimal and dysfunctional turnover: Toward an organizational level model. Academy of Management Review, 9(2), 331–341.

Arnold, H. J., & Feldman, D. C. (1982). A multivariate analysis of the determinants of job turnover. Journal of Applied Psychology, 67(3), 350–360.

Bannister, B. D., & Griffeth, R. W. (1986). Applying a causal analytic framework to the Mobley, Horner, and Hollingsworth (1978) turnover model: A useful reexamination. Journal of Management, 12(3), 433–443.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. Personnel Psychology, 44(1), 1–26.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. Personnel Psychology, 44(1), 1–26.

Barrick, Mount, Judge. (2001). Personality and Performance at the Beginning of the New Millennium, 1–22.

Campion, M. A. (1991). Meaning and measurement of turnover: Comparison of alternative measures and recommendations for research. Journal of Applied Psychology, 76(2), 199.

Cascio, W. F. (1991). Costing human resources: the financial impact of behavior in organizations.

Cohen, J. (1992). A power primer. Psychological Bulletin, 112(1), 155.

Costigan, R. D., Insinga, R. C., Berman, J. J., Kranas, G., & Kureshov, V. A. (2012). A Four-Country Study of the Relationship of Affect-Based Trust to Turnover Intention. Journal of Applied Social Psychology, 42(5), 1123–1142. doi:10.1111/j.1559-1816.2011.00880.x

DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects

of the Big Five. Journal of Personality and Social Psychology, 93(5), 880–896.
doi:10.1037/0022-3514.93.5.880

Fleishman, E. A., & Harris, E. F. (1962). Patterns of leadership behavior related to employee grievances and turnover. *Personnel Psychology*, *15*(1), 43–56.

Glass, G. V., & Hopkins, K. D. (1970). Statistical methods in education and psychology. Prentice-Hall Englewood Cliffs, NJ.

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models, *7*, 7–28.

Griffeth, R. W., Hom, P. W., Gaertner. (2000). A Meta-Analysis of Antecedents and Correlates of Employee Turnover: Update, Moderator Tests, and Research Implications for the Next Millennium. *Journal of Management*, *26*(3), 463–488. doi:10.1177/014920630002600305

Griffin, B., & Hesketh, B. (2004). Why openness to experience is not a good predictor of job performance. International Journal of Selection and Assessment, 12(3), 243–251.

Hom, P. W., Caranikas-Walker, F., Prussia, G. E., & Griffeth, R. W. (1992). A meta-analytical structural equations analysis of a model of employee turnover. Journal of Applied Psychology, 77(6), 890–909.

Hom, P. W., Griffeth, R. W., & Sellaro, C. L. (1984). The validity of Mobley's (1977) model of employee turnover. Organizational Behavior and Human Performance, 34(2), 141–174.

Hulin, C. (1991). Adaptation, persistence, and commitment in organizations.

Jex, S. M., & Britt, T. W. (2008). Organizational Psychology: A Scientist-Practitioner Approach. Wiley.

Johnson, A. A. (1995). The business case for work-family programs. Journal of Accountancy, 180, 53–53.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job

satisfaction: a meta-analysis. Journal of Applied Psychology, 87(3), 530.

Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The big five personality

traits, general mental ability, and career success across the life span. Personnel Psychology,

52(3), 621–652.

Lee, T. W., & Mitchell, T. R. (1994). An alternative approach: The unfolding model of voluntary

employee turnover. Academy of Management Review.

Macy, B. A., & Mirvis, P. H. (1976). A methodology for assessment of quality of work life and

organizational effectiveness in behavioral-economic terms. Administrative Science

Quarterly, 212–226.

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across

instruments and observers. Journal of Personality and Social Psychology, 52(1), 81–90.

McCrae, R. R., & Costa, P. T. (2011). NEO Inventories (pp. 1–159).

Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and

employee turnover. Journal of Applied Psychology, 62(2), 237.

Mobley, W. H., Griffeth, R. W., Hand, H. H., Meglino, B. M., South Carolina University

Columbia Center For Organization Management and Research. (1979). *Review and

Conceptual Analysis of the Employee Turnover Process*.

Mussel, P., Winter, C., Gelleri, P., & Schuler, H. (2011). Explicating the openness to experience

construct and its subdimensions and facets in a work setting. International Journal of

Selection and Assessment, 19(2), 145–156.

Ng, T. W., & Feldman, D. C. (2012). Breaches of past promises, current job alternatives, and

promises of future idiosyncratic deals: Three-way interaction effects on organizational

commitment. *Human Relations*, *65*(11), 1463–1486.

Nusbaum, E. C., & Silvia, P. J. (2011). Are Openness and Intellect distinct aspects of Openness to Experience? A test of the O/I model. Personality and Individual Differences, 51(5), 571–574. doi:10.1016/j.paid.2011.05.013

Salgado, J. F. (2002). The Big Five Personality Dimensions and Counterproductive Behaviors, 1–9.

Schmidt, F. L., & Hunter, J. E. (1998). The Validity and Utility of Selection Methods in Personnel Psychology.

Shaw, J. D., Gupta, N., & Delery, J. E. (2005). Alternative Conceptualizations of the Relationship between Voluntary Turnover and Organizational Performance. Academy of Management Journal, 48(1), 50–68.

Spencer, D. G., Steers, R. M., & Mowday, R. T. (1983). An empirical test of the inclusion of job search linkages into Mobley's model of the turnover decision process. *Journal of Occupational and Organizational Psychology*, *56*(2), 137–144.

Steel, R. P., & Griffeth, R. W. (1991). The elusive relationship between perceived employment opportunity and turnover behavior: A methodological or conceptual artifact? Journal of Applied Psychology, 74(6), 846–854.

Struijs, P. C. (2012). Resistance to Organizational Change: The Effect on Job Satisfaction and Turnover Intention and the Moderating Effect of Emotion Regulation Strategies.

Sun, Y., Luo, Z., & Fang, P. (2013). Factors Influencing the Turnover Intention of Chinese Community Health Service Workers Based on the Investigation Results of Five Provinces. Journal of Community Health, 1–9.

Timmerman, T. A. (2006). Predicting turnover with broad and narrow personality traits.

International Journal of Selection and Assessment, 14(4), 392–399.

van Dam, K. (2008). Time frames for leaving: An explorative study of employees' intentions to leave the organization in the future. Career Development International, 13(6), 560–571.

Woldemicael, G., & Beaujot, R. (1944). Currently married women with an unmet need for contraception in Eritrea: Profile and determinants. *Canadian Studies in Population*, *38*(1-2), 61–81.