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The General Environment Fit Scale: A Factor Analysis and Test of Convergent Construct Validity

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Abstract Person-environment fit (P-E fit) was initially espoused as an important construct in the field of community psychology; however, most of the theoretical and empirical development of the construct has been conducted by the industrial/organizational (I/O) psychologists and business management fields. In the current study, the GEFS—a P-E fit measure that was developed from organizational perspectives on fit—was administered to 246 attendees of an annual convention for residents and alumni of Oxford House, a network of over 1,400 mutual-help addiction recovery homes. The authors conducted confirmatory factor and convergent construct validity analyses with the GEFS. The results suggested that the theoretical factor structure of the measure adequately fit the data and provided limited support for the measure's validity. Sufficient supply of resident needs by the Oxford House and similarity between residents and their housemates predicted satisfaction with the recovery home, but only perceived similarity to housemates predicted how long residents intended to stay in the Oxford Houses.

Keywords Person-environment fit · Congruence · Person-environment congruence · Person-organization fit · General environment fit scale

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Introduction

At the inception of community psychology, person-environment transactions and, more specifically, person-environment fit (P-E fit) were espoused as important concepts for the field (Rappaport 1977). Person-environment fit is a theory that proposes that the congruence between persons and their environments influences behavior and psychological functions (Walsh 2009). The concept has its roots in Parsons' (1909) assertion that individuals varied in their congruence with different occupations, as well as Lewin's field theory (1939), which posited that behavior is a function of both persons and their environments. Pargament (1986) and Moos (1987) developed much of the theoretical and empirical P-E fit community literature, but the majority of P-E fit theory development and empirical research has been conducted by scientists in the industrial/organizational (I/O) psychology and business management fields. These fields have contributed a large body of literature on the concept (Ostroff and Judge 2007). Within this literature, P-E fit has been measured either directly, by explicitly asking individuals how well they fit with an environment, or indirectly, by measuring both the individual and the environment (Kristof 1996). Some examples of indirect fit include the assessment of the values of the individual and the environment, the needs of the individual and supply of those needs by the environment, and the demands of the environment and the abilities of the individual. The lack of fit can have implications for psychological and behavioral outcomes. For example, individuals who do not fit with an environment may leave the setting (Cable and DeRue 2002; O'Reilly et al. 1989). Past literature has also shown fit to be related to alienation (Thomson and Wendt 1995), anxiety (Caplan et al. 1985), depression (Caplan et al. 1985), well-being (Caplan et al. 1985), satisfaction with

settings (Cable and DeRue 2002; DeRue and Morgeson 2007; Handal 1981; Kahana et al. 2003; Verquer et al. 2003), commitment (Cable and DeRue 2002; Greguras and Diefendorff 2009; Verquer et al. 2003), identification with settings (Cable and DeRue 2002), and citizenship behaviors (Cable and DeRue 2002).

Even though much of the recent theoretical and empirical investigation of P-E fit has come from I/O psychology and business management, past research has explicitly and implicitly applied the theory to topics relevant to community psychology, such as individual fit with residential community settings and mutual-help support groups. Examples of these settings include, college residence halls (Tracey et al. 1986), elderly living environments (Buffum 1988; O'Connor and Vallerand 1994), residential mental health care settings (Lehmann et al. 1978; Segal et al. 1989; Timko and Moos 1998), residential addiction recovery settings (Timko and Moos 1998) and mutual support recovery groups (Humphreys and Woods 1993; Luke et al. 1993; Mankowski et al. 2001; Morgenstern et al. 1998; Ouimette et al. 2001). In community settings, P-E fit has been found to be related to social integration (Segal et al. 1989), attendance of support group meetings (Humphreys and Woods 1993; Luke et al. 1993), and 12-step group involvement (Mankowski et al. 2001).

There are a number of common factors that emerge in the studies referenced above. For example, the fit between persons and their environments may be conceptualized as either supplementary or complementary. Supplementary fit is when individuals possess attributes that are similar to their environment, such as when individuals espouse the same values as an environment or when individuals share the demographic characteristics with other members of a setting (Muchinsky and Monahan 1987). Complementary fit is when individuals and environments complement one-another by addressing each other's needs, such as when an environment provides opportunities for achievement that are concordant with the individuals' needs for achievement or when an individual with exceptional problem solving skills is in an environment that is in turmoil.

Underneath the supplementary and complementary domains of fit are more specific components. Under the domain of supplementary fit is congruence between individuals and their setting (Muchinsky and Monahan 1987). One way of conceptualizing such similarity is the congruence between individual and environment goals and values (Chatman 1989). Another component of congruence is the interpersonal similarity between a member of a setting and other members of that setting (Cable and Judge 1996; O'Reilly et al. 1989). This interpersonal similarity is the relationship between the person and others in the setting rather than the person's relationship to the setting itself, which may or may not reflect its members.

Some residential, community and mutual-help setting P-E fit research has demonstrated a theme of demographic similarity. Humphreys and Woods (1993) found that both Black and White participants whose ethnicity matched that of their geographic area were more likely to attend 12-step groups after treatment. Luke et al. (1993) found that participants whose marital status and/or history of hospitalization were different from the rest of the group attended fewer meetings. Segal et al. (1989) found that residents were more socially integrated in facilities and neighborhoods in which their demographics were most closely aligned with their environment or environments that were more tolerant of differences. Lastly, Majer, Jason, Ferrari, Venable, and Olson (2002) found that some residents of recovery homes had difficulty identifying with others around having a disability, having been adopted, sexual orientation, religious past, race, having a mental illness, age, gender, having HIV/AIDS, use of prescription drugs, intravenous drug use, prior incarceration in prison, prior military service, and other characteristics. They found that residents who had problems identifying with others around prior incarceration and military service showed lower levels of abstinence social support, and those with one or more issues identifying with others showed lower self-efficacy regarding substance use.

Currently, complementary fit is conceptualized as being comprised of needs-supplies fit and demands-abilities fit (Cable and DeRue 2002; Caplan 1987). The needs-supplies concept suggests that fit is a result of an environment adequately meeting an individual's needs (Caplan 1987), such as when an introverted individual is in an environment that provides sufficient interpersonal space or when a person with a high need for achievement is in a setting that provides sufficient opportunity for such achievement. O'Connor and Vallerand (1994) found that self-deterministic environments were positively related to psychological adjustment for individuals high in self-determined motivation, but such environments were negatively related to psychological adjustment for individuals low in self-determined motivations.

The demands-abilities concept posits that fit is determined by an individual's ability to meet the demands of her/his environment (Caplan 1987), such as when people have the knowledge required to complete tasks required of them in a given environment. The demands-abilities component of fit is an under-researched aspect of P-E fit. Cable and DeRue (2002) found that, contrary to their hypotheses, demands-abilities fit was only related to perceptions of support from organizations, such as organizational appreciation of extra efforts. Timko and Moos (1998) found that a practical orientation climate in residential treatment settings was associated with the use of treatment services and better functioning for more impaired residents but

recreational activity for less impaired residents, suggesting that individuals may also lack fit with an environment by possessing greater ability than what is demanded from the setting. Together with Harvey and Jason's (in press) findings of greater practical orientation in mutual-help substance recovery housing versus traditional staff-led therapeutic communities, Timko and Moos' (1998) findings suggest that client functioning may be an important consideration when referring recovering individuals to different types of supportive housing. Additionally, Harvey and Jason (in press) found variation in the level of practical orientation across mutual-help houses, suggesting that some mutual-help recovery houses may be a better fit for more impaired residents, while others may be a better fit for less impaired residents.

Although this dimension of fit has been conceptualized as a component of complementary fit, it is unclear how one's ability to meet the demands of the environment complements the setting. Even though the fulfillment of some environmental demands may benefit the setting, demands are more accurately thought of as psychological and physiological challenges rather than the needs of the environment. A measure of individual contributions to a setting might better address the fulfillment of the environment's needs. Kristof-Brown et al. (2005) noted that, although theory and research have sufficiently examined environmental fulfillment of individual needs as a component of complementary fit, the idea that individuals may fulfill environmental needs has yet to be fully explored. Thus, five ways of achieving fit in a setting are through (1) value and goal congruence, (2) interpersonal similarity with others in the setting, (3) environmental supply of individuals' needs, (4) individuals' ability to meet the demands of the environment, and (5) individuals' unique contributions to a setting.

The most widely used measure of fit in the I/O and business management literature is a direct measure of subjective fit developed by Cable and DeRue (2002). This measure examines two dimensions of fit—person-organization fit and person-job fit. For the organization dimension, the measure assesses the congruence between individual and organizational values. For the job dimension, the measure examines individuals' abilities to meet the demands of their job and how well the job meets the needs of the individual. Although this is a reliable, validated, and well-established measure of fit, the instrument is limited. First, the language used in the measure targets employment settings and may not translate well to community settings. Second, the measure only includes positively phrased questions, which may make the instrument more susceptible to response bias. Third, the measure examines two levels of fit (organization and job) within a single instrument rather than assessing multiple components of fit within a single level. Fourth, the measure only assesses individuals'

similarity with environments by the congruence of values rather than also examining similarities between the individual and others in the environment. Individuals can be congruent with the setting in other ways, such as by seeing themselves as similar to others in the setting. Lastly, complementary fit is only examined by assessing environmental fulfillment of individual needs and not by how individuals may offer unique contributions to environments to complement these settings. Given the limitations of this existing measure of P-E fit, a new measure of P-E fit is needed and should incorporate language that is appropriate for community contexts, include both negatively- and positively-phrased questions, examine a single dimension of fit within a particular social context, assess individual perceptions of similarity to others in the setting, and assess individual contributions to environment. The General Environment Fit Scale (GEFS) was developed to address these issues.

Cable and DeRue's (2002) factor analysis found that value congruence, needs-supplies fit, and demands-abilities fit were distinct constructs. The GEFS uses questions phrased similar to this measure, so these constructs are expected to be unique factors in the GEFS. Additionally, Cable and Judge (1996) found that value congruence and interpersonal similarity showed different relationships with global perceptions of fit, which suggests that these may be distinct constructs. Lastly, Piasentin and Chapman (2007) found that similarity and complementarity were distinct constructs. Therefore, these five theoretical dimensions (i.e., value congruence, needs-supplies fit, demands-abilities fit, interpersonal similarity, and unique contributions) are hypothesized to be unique factors in the newly developed GEFS.

In addition, past research has shown that fit with settings is consistently related to satisfaction with the setting (Cable and DeRue 2002; DeRue and Morgeson 2007; Handal 1981; Kahana et al. 2003; Verquer et al. 2003), how long members intend to stay in a setting (Cable and Judge 1996), and how long members actually do stay in settings (Cable and DeRue 2002; O'Reilly et al. 1989). Given the consistency of this literature, any new measure of P-E fit should be expected to predict satisfaction with and intended length of stay in the setting that the measure targets. Therefore, we hypothesize that resident fit with their Oxford House will significantly predict their satisfaction with the recovery home, as well as how long residents intend to stay in their recovery home.

Methods

Sample

The current study examined a theoretical five-factor structure for the GEFS and tested the relationship of the

proposed factors to constructs related to P-E fit. To achieve these goals, we conducted a cross-sectional survey of attendees of the annual Oxford House World Convention. Oxford House is a network of over 1,400 democratically-run mutual-help homes for individuals in recovery from substance addictions and is the largest self-help recovery residential program in the U.S. (Jason and Ferrari 2010). The 2010 Oxford House World Convention drew about 650 attendees, of which 246 (38%) participated in the current study. The convention coordinators allowed the investigators to conduct the study at a table in the vendors section of the convention. The authors recruited participants by either walking up to convention attendees and asking them to participate or making a similar request of attendees who stopped at the table. The participants were compensated with a chance to win one of six $100 Visa gift cards. The sample was 71% White, 19% Black, 11% multiple or other ethnicities, 52% male, and 48% female. Of respondents who answered the question about Oxford House residency, 194 (79%) were current Oxford House residents. The median resident length of residency in their current Oxford House was 12 months (SD = 20.97 months; range = 0–117 months) and the median length of sobriety was 24 months (SD = 42.86 months; range = 0–326 months).

Measures

Person-Environment Fit

P-E fit was measured using the GEFS ("Appendix"), a newly developed Likert-type (1 = strongly disagree to 4 = strongly agree) measure of fit. Although this measure was designed to be used in a variety of community settings, all participants were instructed to assess fit with their Oxford House. The initial self-report questionnaire included 26 randomly-ordered questions that were theoretically devised to assess the five aforementioned components of P-E fit. For each aspect of fit, five to six direct subjective questions about fit were presented to allow participants the flexibility to form their own appraisals of which values, needs, demands, similarities, and unique contributions were influencing fit with their environment (see "Appendix" for items). This direct subjective assessment of fit is concordant with Cable and DeRue's (2002) and others' (Edwards 1991; Kristof 1996; Piasentin and Chapman 2007) methods for examining fit. The measure and subscales were scored by calculating the sum of the items for each, with higher scores indicating greater fit between residents and their OH.

Satisfaction

Residents' satisfaction with their Oxford House was assessed using a slightly modified version of Judge et al.'s (1998) subscale from the Brayfield and Rothe (1951) Job Satisfaction Index. The 7-point Likert-type (1 = strongly disagree to 7 = strongly agree) self-report inventory of employees' satisfaction with their job has been shown to be both valid and reliable (Judge et al. 1998). This measure was modified by replacing "job" with "Oxford House." Examples of questions include, "I feel fairly satisfied with my Oxford House" and "Most days I am enthusiastic about my Oxford House." The measure was scored by calculating the sum of the items, with higher scores indicating greater resident satisfaction with their Oxford House. The measure demonstrated good internal consistency in the current study ($\alpha = 0.81$).

Tenure

Expected tenure was measured by asking participants a single question about how long they intended to stay in their current recovery home. Participants indicated how many years and months they intended to stay. Participants also indicated how many years and months they had already lived in their Oxford House.

Data Analyses

Missing Data

Of the 246 participants in this study, 23 participants who did not complete at least half of the GEFS (20 current residents and 3 alumni) were excluded from all analyses, leaving us with a final sample size of 223 for the CFA and 154 for the validity analyses. For the CFA, the missing data for those that completed at least half of the instrument were missing completely at random (Little's MCAR $\chi^2(df = 268) = 299.60, p = 0.09$),; therefore the Full Information Maximum Likelihood (FIML) feature in Mplus (Muthén and Muthén 2008) was used to estimate the model based on available data. For the validity analyses, the satisfaction data were missing completely at random (Little's MCAR $\chi^2 (df = 4) = 2.18, p = 0.70$), so we imputed these values using Maximum Likelihood in PASW 17.0.2. Missing data for the expected length of stay variable were deleted listwise, because this was assessed using a single question.

Item Selection

The GEFS was originally intended to include two forward and two reverse items for each factor (4 items per factor and 20 total items), with an additional 6 items included for this study to allow for item deletion during psychometric testing. However, in reexamining the content of 3 items (#8, #12, and #26; see "Appendix" for items), we determined that the items were not concordant with the

Table 1 Confirmatory factor analysis models

Model 1[1]	Model 2	Model 3	Model 4	Model 5[2]	Model 6[3]
Factor 1	Factor 1	Factor 1	Factor 1	Factor 1	Factor 1
VC	VC	VC	VC	VC	VC
Factor 2	NS	IS	IS	Factor 2	Factor 2
NS	DA	Factor 2	Factor 2	NS	NS
Factor 3	IS	NS	NS	Factor 3	Factor 3
DA	UC	DA	UC	DA	DA
Factor 4		UC	Factor 3	Factor 4	Factor 4
IS			DA	IS	IS
Factor 5				Factor 5	Factor 5
UC				UC	UC

[1] All subscales allowed to correlate. [2] Subcales not allowed to correlate. [3] Five factors are subsumed under a hierarchical global dimension. *VC* Value Congruence subscale, *NS* Needs-Supplies subscale, *DA* Demands-Abilities subscale, *IS* Interpersonal Similarity subscale, *UC* Unique Contribution subscale

constructs that we had hoped to assess. These items were dropped before the factor structure was assessed. Items #8 and #12 were both phrased in a way that could be interpreted as a question asking *what* social environment fulfills the residents' needs rather than *if* the target environment sufficiently addresses the resident's needs. Instead of comparing settings, we intended to assess needs specific to the our target environment. Item #26 asked about residents filling a role that was not filled by other residents; however, residents of Oxford House hold leadership positions that alternate between residents. An affirmative answer to this question could indicate that the person holds one of these positions rather than a person having unique attributes that benefit the setting. After removing these 3 items, 23 items remained, with 6 items on the proposed Value Congruence factor, 3 items on the Needs-Supplies factor, 5 items on the Demands-Abilities factor, 5 items on the Interpersonal Similarity factor, and 4 items on the Unique Contributions factor. To limit these factors to no more than four items each for the factor analysis, we dropped items with the lowest standard deviations (SD) in each subscale, which demonstrated that these items might have been less sensitive at detecting variations in perceptions of fit.

Confirmatory Factor Models

The authors conducted a series of seven confirmatory factor analyses (CFA) using Maximum Likelihood Robust (MLR) in Mplus 5.2 (Muthén and Muthén 2008). Although the largest skew (-15.39) and kurtosis (23.80) statistics for items indicate violations of univariate normality, the MLR technique used is robust to non-normality. The six models examined were: (1) the five-factor theoretical structure with all factors allowed to correlate, which was the reference model for comparing alternative solutions; (2) a uni-dimensional structure; (3) a two-factor structure comprised

of complementary fit and supplementary fit as defined by Cable and DeRue (2002); (4) a three-factor solution that removed demands-abilities fit from the complementary factor, because having the ability to meet the demands of an environment does not necessarily complement the environment; (5) the five-factor theoretical structure of the GEFS with no correlation between factors; and (6) a model including the correlated five-factor theoretical structure and global fit as a higher-order factor (see Table 1 for the six proposed models).

Examining Model Fit

To assess model fit, the study examined the absolute fit of the theorized five-factor model and the aforementioned alternative models. Fit was assessed using the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) for each of the six proposed models, with guidelines suggested by Hu and Bentler (1999; CFI close to or >0.95, RMSEA close to or <0.06; and SRMR close to or <0.08). We examined model fit using the entire sample of residents and alumni of Oxford House, as well as a sub-sample of only current residents. Confirmatory factor analyses demonstrated comparable model fit statistics for both sets of analyses, so both groups' data were combined to increase power in the analyses, with alumni retrospectively reporting on their perceived fit with the Oxford House in which they lived.

Convergent Construct Validity

Data for all measures were collected in a single administration of the battery. We examined validity for the GEFS by testing the relationship of the measure's five factors to both satisfaction and intended length of stay, with

residents' time already spent in Oxford House used as a control variable in predicting how much longer they intended to stay. Satisfaction and expected tenure were regressed onto all of the five factors using backward selection with PASW 17.0.2, with significant predictions demonstrating convergent construct validity for the factor. This technique was used instead of structural equation modeling, so that the results would be concordant with future use of the measure, whereby scale scores would be a summation of the items. Backward selection was used to limit the model to only significant predictors. Only current Oxford House residents' data were used for these validity analyses.

Results

Selection of Items

First, the authors selected the four items with the largest statistical SD in each theorized factor to ensure that items were maximally sensitive at detecting variations in perceptions of fit. We dropped item #4 (SD = 0.31) and item #25 (SD = 0.30) from the Value Congruence subscale, item #5 (SD = 0.31) from the Demands-Abilities subscale, and item #14 (SD = 0.29) from the Interpersonal Similarity subscale.

Confirmatory Factor Analysis

The extent of missing data for the remaining 19 items used for the factor analysis, as well as the means, SD and inter-item correlations for these items, are depicted in Table 2. The CFA using the 19 items failed to confirm the theorized five-factor structure of the GEFS (CFI = 0.86; TLI = 0.83 RMSEA = 0.07, $CI_{0.95}$ = 0.05, 0.08; SRMR = 0.07); however, some items were not explained as well as others by the factor structure. In order to obtain adequate model fit, we removed the items with the lowest z scores, which indicated that these items were least representative of the corresponding factor. Four items were removed through this process. We eliminated item #1 (λ = 0.53, SE = 0.07, z = 7.64, p < .001) from the Value Congruence subscale, item #3 (λ = 0.36, SE = 0.09, z = 3.98, p < 0.001) from the Demands-Abilities subscale, item #22 (λ = 0.66, SE = 0.07, z = 10.12, p < .001) from the Interpersonal Similarity subscale, and item #7 (λ = 0.62, SE = 0.07, z = 9.21, p < .001) from the Unique Contributions subscale.

The final five-factor structure for the remaining items (see Fig. 1) contained 15 items and conformed to the five-factor P-E fit theory it was developed with (see Tables 3, 4, 5, 6 for results). As indicated in Table 3, the unidimensional model, two-factor model, three-factor model,

five-factor model with no correlation between factors, and higher-order model did not meet the a priori criteria on the fit indices, which suggest that these alternative models do not adequately fit the data. Because none of these comparison models adequately fit the data, fit statistics for them were not compared to the theoretical five-factor structure that allowed factors to correlate. The five factors of the GEFS demonstrated unacceptable to good internal consistency (see Table 6 for subscale internal consistency and descriptive statistics)–the Demands-Abilities demonstrated unacceptable reliability. It should be noted that each subscale only contained three items; shorter scales generally demonstrate lower internal consistency. The subscales showed low to high correlations with one-another (see Fig. 1).

Convergent Construct Validity

Analyses of convergent construct validity indicated that, as hypothesized, resident satisfaction with their Oxford House was significantly predicted by needs-supplies fit (β = 0.52, $t(151)$ = 7.50, p < 0.001) and interpersonal similarity with other residents (β = 0.14, $t(151)$ = 1.94, p = .05). These two aspects of fit explained 33% of the variance in resident satisfaction with their Oxford House (R^2 = 0.33, $F(2, 153)$ = 37.21, p < .001). Resident perceptions of similarity between themselves and their housemates was the only significant predictor of expected tenure and explained 4% of the variance in this construct (β = 0.20, $t(122)$ = 2.43, p = .02, r_p^2 = 0.04), while controlling for the length of time already spent in the Oxford House.

Discussion

The current study confirmed the hypothesized factor structure of the GEFS after eliminating 4 items that were not explained well by this structure. This elimination of items resulted in subscales that contained 3 items each rather than the 4 items for each that we intended. The five-factor structure included: value congruence, needs-supplies fit, demands-abilities fit, interpersonal similarity, and unique contributions fit. None of the alternative models fit the data well, suggesting that the GEFS may not be appropriate as a unidimensional measure and that neither Cable and DeRue's (2002) nor our conceptualization of supplementary and complementary fit adequately describes the structure of P-E fit. Reference to these concepts as unitary constructs may need to be reconsidered. Perhaps, complementary fit may need to be divided into distinct unrelated components, where individuals can achieve fit by either meeting the needs of the setting or the environment meeting the individual's needs.

Table 2 Inter-item Correlations and Descriptive Statistics

Item	1	2	3	6	7	9	10	11	13	15	16	17	18	19	20	21	22	23	24
1	–																		
2	0.22	–																	
3	0.18	0.23	–																
6	0.24	0.31	0.12	–															
7	0.00	–0.12	0.13	.02	–														
9	0.31	0.23	0.24	0.30	0.20	–													
10	0.24	0.16	0.19	0.07	0.17	0.27	–												
11	0.12	0.12	0.10	0.53	0.03	0.32	–0.03	–											
13	0.31	0.43	0.35	0.26	0.18	0.46	0.17	0.24	–										
15	0.32	0.19	0.25	0.31	0.14	0.43	0.12	0.27	0.45	–									
16	0.14	0.06	0.00	–0.06	0.39	0.10	0.21	–0.16	0.13	–0.01	–								
17	0.28	0.36	0.30	0.18	0.24	0.41	0.18	0.22	0.63	0.48	0.18	–							
18	0.25	0.17	0.04	0.45	–0.10	0.21	0.01	0.64	0.21	0.16	–0.16	0.20	–						
19	0.33	0.25	0.10	0.21	0.19	0.20	0.30	0.09	0.32	0.28	0.34	0.33	0.19	–					
20	0.16	0.25	0.13	0.07	0.20	0.27	0.18	0.02	0.39	0.22	0.32	0.35	0.06	0.30	–				
21	0.16	0.07	0.22	–0.02	0.49	0.20	0.21	0.01	0.31	0.27	0.43	0.34	–0.05	0.25	0.25	–			
22	0.19	0.13	–0.07	0.51	–0.05	0.16	0.07	0.45	0.12	0.14	–0.02	0.11	0.54	0.22	–0.03	–0.04	–		
23	0.19	.01	.07	–.01	0.43	0.14	0.29	–0.04	0.20	0.18	0.49	0.25	–0.12	0.31	0.23	0.46	–0.02	–	
24	0.41	0.24	0.13	0.39	0.09	0.34	0.12	0.26	0.34	0.45	0.05	0.37	0.26	0.37	0.19	0.19	0.33	0.17	–
Mean	3.36	3.41	3.65	2.84	3.36	3.65	3.63	2.68	3.62	3.41	3.24	3.57	2.82	3.32	3.67	3.42	2.98	3.35	3.22
SD	0.55	0.69	0.62	0.74	0.81	0.61	0.55	0.87	0.58	0.75	0.74	0.59	0.87	0.56	0.63	0.70	0.67	0.62	0.63
n[1]	223	220	222	222	223	223	221	219	223	222	220	221	222	220	218	216	219	216	216

All correlations above 0.14 are significant at $\alpha = 0.05$ and correlations above 0.18 are significant at $\alpha = 0.01$. [1] Indicates total completed observations for each item, with a total sample size of 223
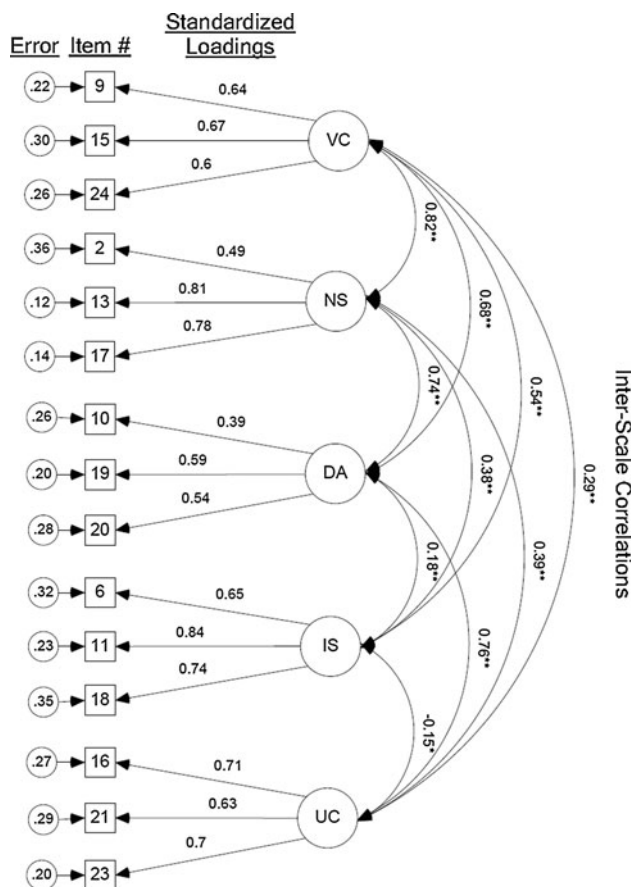
Fig. 1 Five-factor confirmatory factory analysis for the General Environment Fit Scale. *p < .05, **p < .01, VC = Value Congruence subscale, NS Needs-Supplies subscale, DA Demands-Abilities subscale, IS Interpersonal Similarity subscale, and UC Unique Contributions subscale

Analyses of individual factors' relationship to validity constructs found that only needs-supplies fit and residents' perceived similarity with their housemates predicted resident satisfaction with their recovery home, and only interpersonal similarity predicted expected tenure in the setting. The relationship between interpersonal similarity and satisfaction is similar to past research on

supplementary fit (Piasentin and Chapman 2007), suggesting that similarity with others may have relationships in community settings that are concordant with those in employment settings. The in-group identity created through perceptions of similarity could be particularly important for these mutual-help environments in which social supports are important to individual outcomes (Groh et al. 2007). The relationship between interpersonal similarity and intended tenure is similar to past research on similarity predicting greater actual tenure in employment settings (O'Reilly et al. 1989), as well as research demonstrating that greater demographic similarity between individuals and their geographic environment was related to mutual-help group attendance (Humphreys and Woods 1993). These past findings and the findings of the current study suggest that identification with other members of a social environment is important for satisfaction with the setting and individual motivations to enter and remain in that environment. As Majer et al. (2002) indicated these identities are broader than demographic characteristics.

The relationship of need fulfillment to satisfaction is particularly marked in that this relationship was found despite a ceiling effect on the Needs-Supplies subscale. Ceiling effects hinder the ability to detect a relationship between the two constructs if one exists. The relationship of needs-supplies fit to satisfaction suggests that residents may expect their needs to be met and could be dissatisfied if these needs are not adequately addressed. Because Oxford House is essentially a service delivery setting that is designed to address residents' needs for sober housing, residents who perceive that they are not adequately receiving expected services may be dissatisfied. This is similar to other service delivery models of consumer satisfaction (Zeithaml et al. 1993). However, need fulfillment was not related to how long residents expected to stay in their recovery home. Although need fulfillment may make an environment attractive and desirable to stay in, needs likely change and diminish in recovery. As residents progress through recovery, needs may change from abstinence

Table 3 CFA model fit statistics

Models	χ^2	df	CFI	RMSEA	RMSEA C.I.	SRMR
Model 1[a]	124.37**	80	0.94	0.05	[0.03, 0.07]	0.06
Model 1[b]	126.48**	80	0.92	0.06	[0.04, 0.07]	0.06
Model 2	389.17**	90	0.57	0.12	[0.11, 0.14]	0.12
Model 3	338.44**	89	0.64	0.11	[0.10, 0.13]	0.11
Model 4	336.04**	87	0.64	0.11	[0.10, 0.13]	0.11
Model 5	338.13**	90	0.64	0.11	[0.10, 0.12]	0.19
Model 6	172.52**	85	0.87	0.07	[0.05, 0.08]	0.08

[a] Theorized five-factor model using the entire sample. [b] Theorized five-factor model using only current residents. CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation SRMR = Standardized Root Mean Square Residual. ** p < .001

Table 4 Factor loadings

	Estimate	SE	95% CI	z
Factor 1				
Item 9	1.00	–	–	–
Item 15	1.29	0.18	[0.94, 1.64]	7.23
Item 24	0.96	0.15	[0.67, 1.26]	6.41
Factor 2				
Item 6	1.00	–	–	–
Item 11	1.52	0.22	[1.08, 1.95]	6.84
Item 18	1.33	0.21	[0.93, 1.75]	6.38
Factor 3				
Item 2	1.00	–	–	–
Item 13	1.43	0.29	[0.86, 2.00]	4.90
Item 17	1.37	0.28	[0.82, 1.93]	4.84
Factor 4				
Item 16	1.00	–	–	–
Item 21	0.83	0.14	[0.56, 1.11]	5.92
Item 23	0.83	0.12	[0.61, 1.06]	7.24
Factor 5				
Item 10	1.00	–	–	–
Item 19	1.52	0.33	[0.86, 2.16]	4.53
Item 20	1.58	0.48	[0.63, 2.52]	3.26

All loadings significant at $p < .001$

Table 5 Error variances for final 5-factor model

Item	Estimate	SE	95% CI	z
2	0.36	0.04	[0.29, 0.43]	9.77
6	0.32	0.05	[0.22, 0.42]	6.54
9	0.22	0.05	[0.13, 0.31]	4.69
10	0.26	0.05	[0.16, 0.35]	5.29
11	0.23	0.05	[0.13, 0.33]	4.44
13	0.12	0.02	[0.07, 0.16]	5.22
15	0.30	0.07	[0.17, 0.44]	4.39
16	0.27	0.06	[0.16, 0.38]	4.88
17	0.14	0.03	[0.08, 0.19]	4.71
18	0.35	0.06	[0.23, 0.47]	5.69
19	0.20	0.03	[0.14, 0.26]	6.81
20	0.28	0.07	[0.14, 0.42]	3.82
21	0.29	0.06	[0.17, 0.42]	4.58
23	0.20	0.04	[0.13, 0.28]	5.15
24	0.26	0.05	[0.16, 0.35]	5.43

All error variances are significant at $p < .001$

Table 6 Subscale internal consistency and descriptive statistics

GEFS Subscale	α	Min	Max	Mean	SD
Value congruence	0.65	4	12	10.12	1.57
Needs-supplies	0.71	6	12	10.43	1.57
Demands-abilities	0.49	7	12	10.52	1.24
Interpersonal similarity	0.78	3	12	8.14	2.08
Unique contribution	0.72	3	12	9.93	1.65

considering other motivations in their assessment of how long they will live in the house.

The congruence between individual and setting values and environmental supply of individual needs have previously been shown to be important predictors of satisfaction and intended (Cable and Judge 1996) as well as actual tenure (Cable and DeRue 2002), but value congruence was not found to significantly predict satisfaction or expected tenure in this recovery community. It is possible that in community settings such as recovery homes, which are designed to address residents' need for sober housing, sufficiency in meeting the need may supersede differences in values. These are essentially service delivery settings where a group of individuals with similar problems provides a service of support for sobriety. One could overlook differences in values by focusing on the satisfaction of recovery needs and a community of similar others.

As with past research in employment settings (Cable and DeRue 2002), we did not find any relationship between the Demands-Abilities fit subscale and either residents' satisfaction with their Oxford House or how long they intended to stay in their recovery home. However, the limited range in the Demands-Abilities subscale may have curtailed our ability to find a relationship between the two constructs if, in fact, one exists. The reasons for the lack in this relationship may differ between employment and community settings though. For example, Cable and DeRue (2002) indicated that the ability to meet the demands of a setting may not influence satisfaction, because employees can seek additional training or transfer to another job duty. In mutual-help settings such as Oxford House, the impact of insufficient ability may be tempered by the social support received from peers. Individuals in early recovery have lesser competencies and may have some difficulty meeting environmental demands, because of substance-related deterioration and stagnated growth. Housemates, who are peers in recovery, would likely recognize and support residents who are not able to meet environmental demands. Additionally, as residents acquire greater competencies during recovery, they would be expected to transition into independent living environments. Thus, greater ability to meet the demands of an Oxford House may signal an impending move from the home. However, the restricted

to continued personal growth and reintegration. Although residents may have many needs that influence their desired place of residence, the most salient need for a questionnaire about Oxford House would likely be their recovery. Thus, they may be considering only their recovery needs in questions about Oxford House fulfilling needs but

range of the Demands-Abilities subscale makes interpretation of this finding difficult. If there was a relationship between these constructs, the ceiling effect could have masked the effect. The relationship may also have been more difficult to assess given the low reliability for this subscale, which would introduce greater error.

Our lack of findings for a relationship between unique contributions to a setting and satisfaction is more difficult to compare to employment settings given the paucity of research for this component of fit. Again, satisfaction with and intent to stay in service delivery settings may be driven more by whether, how well, and by whom the service is received (Zeithaml et al. 1993). Additionally, some participants verbally indicated that they do not add to the setting by being different, because that would mean that they are somehow superior to others in the setting. It is unclear whether this was a personality characteristic of particular participants or whether the mutual-help setting was fostering collectivistic values. It may be more accurate to ascertain contributions to collectivistic settings with questions about contributions to the setting in general rather than unique contributions. As with other components of fit, we found a restricted range in our convenience sample for the Unique Contributions subscale.

Although these findings offer only limited support for the measure's validity when compared to past research in employment settings, the relationship between fit and outcomes is likely different in community settings. These finding suggest that, similar to employment settings, components of fit in community settings may have a positive relationship with satisfaction and intended length of stay. However, specific components related to these constructs may be different. Overall, these results provide limited convergent validity to suggest that the GEFS might be used as a measure of person-environment fit in community settings. Both the satisfaction and expected tenure findings provide support for the addition of the similarity subscale, but further research will need to examine the utility and possible adaptation of the unique contributions subscale.

Although this study has shown most of the GEFS subscales to have adequate internal consistency and limited confirmatory validity, there are some limitations to this study and its findings. For example, the sample size for the factor analysis was relatively small, with 5.58 cases per parameter for the final model. Kline (2004) recommends 5–10 cases/parameter, which would place our study, is at the lower end of this range. The measure was tested on a single specific population of individuals in recovery from substance addiction and was a convenience sample of Oxford House World Convention attendees. Those attending this conference may have had better fit and satisfaction with their Oxford Houses given their motivation

to attend this conference, for which attendees must devote a substantial amount of money for registration and transportation costs. This conference also has sessions that provide inspiration regarding the Oxford House system, so fit and satisfaction scores may have been inflated by the social context. The restricted range on these variables, as well as the inconsistency of the Demands-Abilities subscale, may have limited our ability to detect relationship of P-E fit components to satisfaction and tenure intentions. Additionally, the current study did not fully support convergent validity and did not examine predictive or discriminant validity. Future research should examine predictive validity, as well as the discrimination between factors and differential relationships in employment and community settings. Furthermore, many participants commented that they intended to stay as long as was needed for their recovery, so alternative assessment of factors related to how long individuals will stay in a setting may be needed. The current study used a cross-sectional design and examined intentions to stay in a recovery home rather than actual length of stay. Future longitudinal studies may provide valuable insight about the impact of fit on actual tenure. Moreover, additional components of fit could be examined through qualitative analysis of individuals' fit with their environments to examine factors that may not have operated in employment contexts. Lastly, the study only examined one environmental context. Future research should examine the measure's utility in other contexts and the interrelationship of fit with multiple settings.

It is unfortunate that no research has been conducted on P-E fit in multiple contexts and the impact of these multiple fits on global outcomes, such as mental health, well-being, satisfaction with life, and substance use. For those in recovery from substances, important contexts to examine in future research include recovery homes, treatment groups, mutual-help support groups, the workplace, and the family. Jansen and Kristof-Brown's (2006) conceptualization of multiple dimensions of person-organization fit provide some guidance for conceptualizing fit in multiple settings. When considering multiple settings, fit should be determined by the outcome of interest. For global outcomes, such as mental health, well-being, satisfaction with life, and substance use, multiple fits should be examined; however, specific fit may be more appropriate for outcomes such as involvement, commitment, and satisfaction with a particular setting. In addition, little research has been conducted on the fit between organizations or programs and their environmental context. As demonstrated by Segal et al. (1989), some organizations may better fit some particular environments better than other organizations. Finally, studies examining the implication of P-E fit thus far have not generally examined implications for the environment. For example, one could imagine that

individual misfit with a group could have detrimental effects on group cohesion and a sense of community, particularly for small groups.

In summary, the GEFS is firmly grounded in P-E fit theory and includes subscales for five conceptualizations of fit. The measure was mostly reliable with limited validation. The demonstration of the relationship of needs-supplies fit and interpersonal similarity to satisfaction and of interpersonal similarity to intended length of stay are noteworthy given the selectivity of the sample and lack of resulting variability in both fit and satisfaction. These results suggest that P-E fit influences residents' experiences of their recovery home, but the relationship between fit and outcomes may be different in community settings than in employment settings. The GEFS provides an opportunity for community researchers to examine fit in community settings with a reliable and theoretically-grounded instrument designed to be used in a variety of environmental contexts. Hopefully, the results of this study and the development of a P-E fit measure for community contexts will challenge the field of community psychology to further examine fit with communities and advance P-E fit theory to address the needs of community psychology.

Appendix: General Environment Fit Scale

The items below ask about how well the **Oxford House** you currently **live** in matches your values, needs, abilities, and characteristics. Please circle the number to indicate how much you agree or disagree with each statement.

1. The things that I value in life are very similar to the things that my **Oxford House** values.
2. The **Oxford House** that I currently **live** in gives me just about everything I could ever need from a **recovery home**. (NS)
3. My abilities and personal experience are a poor fit with the requirements of the **Oxford House**.*
4. My personal values match those of my **Oxford House**.
5. My personal abilities and education are a good match for the demands that my **Oxford House** places on me.
6. The other **residents** of my **Oxford House** are similar to me. (IS)
7. I do not add anything unique to my **Oxford House**.*
8. My needs are met by the **Oxford House** I live in.
9. My values prevent me from fitting in with my **Oxford House**. (VC*)
10. I have the ability to meet the demands of my **Oxford House**. (DA)
11. The other **residents** of my **Oxford House** are different from me. (IS*)
12. My **Oxford House** fulfills my needs.
13. There is a poor fit between what my **Oxford House** offers me and what I need in a **recovery home**. (NS*)
14. I don't fit in with my **Oxford House** because I am different than other **residents**.*
15. The values of my **Oxford House** do not reflect my own values. (VC*)
16. My unique differences add to the success of my **Oxford House**. (UC)
17. The **Oxford House** that I **live** in does not have the attributes that I need in a **recovery home**. (NS*)
18. I am different than the other residents of my **Oxford House**. (IS*)
19. The match is very good between the demands of my **Oxford House** and my personal skills. (DA)
20. I am not able to meet the demands of my **Oxford House**. (DA*)
21. Nothing unique about me adds to the success of my **Oxford House**. (UC*)
22. I am similar to other **residents** of my **Oxford House**.
23. I make unique contributions to my **Oxford House**. (UC)
24. My personal values are similar to those of my **Oxford House**. (VC)
25. The values of my **Oxford House** are a good fit with my values.
26. I fill an important role in my **Oxford House** that others in the **house** don't fill.

Notes: Only items with subscale indicators were included in the final measure. VC = Value Congruence subscale items, NS = Needs-Supplies subscale items, DA = Demands-Abilities subscale items, IS = Interpersonal Similarity subscale items, and UR = Unique Contribution subscale items. The **bolded** words are to be replaced with the name or type of setting (i.e. recovery home or Oxford House), the action associated with the setting (i.e. living), and referent for other members in the setting (i.e. residents). *Denotes a reverse-scored item.

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