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Original Research

Confirmatory Factor Analysis for the Service-Learning Outcomes Measurement Scale (S-LOMS)

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Editor: Valerie L. Holton, Ph.D.

Abstract

Service-learning was introduced into Hong Kong over a decade ago, yet there is a research gap about the self-perceived developmental outcomes for students, partly due to the lack of a reliable measurement instrument across course disciplines and types of service-learning. This study validated a recently created Service-Learning Outcomes Measurement Scale (S-LOMS) through confirmatory factor analysis (CFA) with data from 629 students. S-LOMS measures self-perceived student development through 56 items, which cover outcome domains under four overarching categories: knowledge application, personal and professional skills, civic orientation and engagement, and self-awareness. Alternative measurement models were compared in this validation exercise, with the results indicating that although a model with 11 domains and without overarching categories was preferred, there was also support for a model with 10 domains subsumed under the four abovementioned overarching categories. Multi-sample analyses indicated that both models were stable across gender. The practical implication of our findings is that for the purpose of measuring the developmental impacts on students of engaging in service-learning, S-LOMS offers investigators a number of options besides using the entire 56-item scale. Some administrative options are described at the end of the paper.

Keywords: Service-learning, Hong Kong, student developmental impacts, measurement instruments

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Introduction

Service-learning is "a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development" (Jacoby, 1996, p. 5). This transformative pedagogy has spread around the globe (Shumer, Stanton, & Giles, Jr., 2017). Hong Kong is no exception, as over the past decade service-learning has been introduced to most universities there (Ma, 2018; Ma & Chan, 2013). Developmental outcomes for students arising from service-learning have been well illustrated in the west (e.g. Astin & Sax, 1998; Astin, Vogelgesang, Ikeda, & Yee, 2000; Celio, Durlak, & Dymnicki, 2011; Conway, Amel, & Gerwien, 2009; Driscoll, Holland, Gelmon, & Kerrigan, 1996; Felten & Clayton, 2011; Einfeld & Collins, 2008; Eyler & Giles, 1999; Elyer, Giles, Stenson, & Gray, 2001; Lundy, 2007; Novak, Markey, & Allen, 2007; Prentice, 2007; Richard, Keen, Hatcher, & Pease, 2017; Rama, 1998; Simon & Cleary, 2006; Warren, 2012; Yorio & Ye, 2012). Evaluating developmental outcomes for students is considered to be one of the five critical elements of successful service-learning programs, according to Jacoby (1996). This is because evaluation sheds light on directions for improvement and growth, and it encourages sustainable collaboration between schools and the community. However, the body of scholarly publications about student development arising from service-learning in Asia remains limited (Xing & Ma, 2010; Snell & Lau, 2020).

This scarcity can be attributed to the absence of a standardized and reliable measurement instrument for assessing those student developmental outcomes after service-learning experience that are targeted by universities in Hong Kong. There have only been a small number of similar measurement instruments used in the past for this purpose, and these have had various inadequacies. Problems have included: (a) importing scales which have been developed in the west into Asian contexts, and which are subject to standardization concerns (e.g. Lo, Kwan, Chan, & Ngai, 2016; Ngai, 2009; Siu, Tang, & Lai, 2013); (b) covering a limited set of developmental domains (e.g. Eyler, Giles, & Braxton, 1997); and (c) having insufficient target respondents for scale validation (e.g. Ma, Chan, & Tse, 2019). Addressing this gap, Snell and Lau (2020) developed an instrument named the "Service-Learning Outcomes Measurement Scale (S-LOMS)." S-LOMS measures learning outcomes perceived by students under four overarching categories covering 15 domains. The first category is knowledge application and has one cognominal domain. The second category is personal and professional skills, which comprises the six domains of creativity, problem solving skills, relationship skills, team skills, self-reflection skills, and critical thinking skills. The third category is civic orientation and engagement, which comprises the five domains of commitment to social betterment, understanding community, empathy and caring for others, respecting diversity, and sense of social responsibility. The fourth category is self-awareness, which comprises the three domains of self-efficacy, self-understanding, and commitment to self-improvement. S-LOMS consists of 56 descriptive items regarding the above domains, to which participants respond with a 10-point Likert scale, ranged from 1 as "strongly disagree" to 10 as "strongly agree."

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In comparison with similar measurement instruments that have been adopted in the past, S-LOMS carries several merits. First, it has been designed for the context of Hong Kong, reflecting the local culture and recent developments within the higher education sector there (Snell & Lau, 2020). Second, the set of domains included in S-LOMS comprehensively covers the desired developmental outcomes of Hong Kong based service-learning programs. Third, the administration of S-LOM is both standardized and flexible, such that practitioners can elect to measure developmental categories or domains, according to their needs. Fourth, S-LOM is expected to undergo rigorous validation before its practical implementation. In a previous validation study (Snell & Lau, 2020), S-LOMS was tested with 400 Hong Kong university students, and the current study involves a further 600-plus respondents. It is intended that there will be subsequent studies of test-retest reliability and criterion validity, which will engage additional respondents. We anticipate that the conceptual relevance and scale validity of S-LOMS will attract its usage by service-learning practitioners as a tool for assessing progress on the enhancement of developmental outcomes for students.

The starting point for the development of S-LOMS as a measurement instrument was a review of the common student developmental domains arising from service-learning, as documented in past literature. This was followed by considering the special educational and social context for service-learning in Hong Kong. For example, within the overarching category of civic orientation and engagement, the instrument was oriented more toward moral development than participatory democracy. To further match the emerging instrument to the local context, the authors also invited local service-learning practitioners to examine the developmental domains and proposed items in the development process. As a result, 15 developmental domains under the four aforementioned overarching categories were identified.

An initial study (Snell & Lau, 2020) was then conducted to validate S-LOMS based on its administration with a sample of 400 university students. S-LOMS was found to have satisfactory internal consistency with the underlying dimensionality uncovered through exploratory factor analysis (EFA) by using the method of Principle Components with oblimin rotation. In that study, regarding reliability, S-LOMS achieved the Cronbach's alpha value above .70 for its four categories, while the 15 original domains collapsed into 11, as follows. Creativity and problem solving skills combined into the higher-order domain of creative problem solving skills. Another higher-order domain comprised relationship and team skills. A third higher-order domain, community commitment and understanding, combined commitment to social betterment with understanding community. A fourth higher-order domain, caring and respect, combined empathy and caring for others with respecting diversity. The other domains remained discrete.

The current study continues the measurement instrument validation journey. This paper reports the validation results of testing S-LOMS with a new sample through confirmatory factor analysis (CFA) against the above factor structure that emerged in the previous EFA study (Snell & Lau, 2020). It is intended that subsequent research not reported here will test for other types of

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validity regarding S-LOMS, such as test-retest reliability, and will then use S-LOMS to measure developmental outcomes for students through before and after administration around service-learning experience. The above practice is a typical step in the scale development process (e.g., Brown, 2015; Hurley, Scandura, Schriesheim, Brannick, Seers, Vandenberg, & Williams, 1997; Tay & Jebb, 2017; Worthington & Whittaker, 2006). While EFA is used to identify the dimensionality for a set of variables, it does not force variables to be loaded on certain factors in advance. By contrast, CFA tests whether data fits a pre-specified factor structure (Stevens, 2009). The current study tested a series of alternative models with various factor structures. Since the 11-domain factor structure discussed above had received empirical support from only one prior EFA study, the current study adopted a prudent approach in testing that structure together with the originally theoretical 15-domain factor structure proposed by Snell and Lau (2020), together with other possible structures, so as to compare which one would provide a better fit with a new set of data.

Methods

Participants

The current study recruited 629 university students from four Hong Kong government universities, namely Lingnan University, The Hong Kong Polytechnic University, Hong Kong Baptist University, and The Education University of Hong Kong. Female respondents constituted a larger part of the sample (59.5%) and the average age was 20.5 (s.d. = 2.21). Broken down by major disciplines, the sample comprised engineering and science (40.9%), business (19.9%), social sciences (14.3%), arts (12.7%), and healthcare (12.2%). Among the respondents, 65.8% had previous service-learning experience or were in the process of taking service-learning programs or courses.

Instrument

The original structure with four overarching categories and 15 domains described above was employed in the construction of S-LOMS. In the 56-item instrument administered to the students (see Appendix 1), there were three to four items for each of the 15 domains, in the form of self-descriptive statements. Respondents were asked to indicate the extent of their agreement with the items on a 10-point Likert scale (from 1, “strongly disagree” to 10, “strongly agree”).

Procedures

The respondents were invited to answer S-LOMS on a voluntarily basis in a classroom setting, with consent from the instructors of the respective courses, which did not necessarily involve service-learning. Besides S-LOMS, the students completed some demographic items about

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gender, age, academic background, and prior service-learning experience. Upon completing the questionnaire, the students received a HK$50 supermarket voucher.

Statistical Analysis

CFA was employed in the analysis, using EQS version 6.4 for Windows, and the extent of missingness of the sample data and the assumption of multivariate normality were checked, in order to decide the estimation methods. Regarding data missingness, 520 of the 629 participants (82.7%) provided no missing responses. The mean percentage of missing responses in an item was 0.4%. 63 missing patterns were identified among the 109 respondents with missing responses. Moreover, the sample was tested with multivariate normality. The related indices provided by the EQS indicated violation of the assumption. Specifically, both the Yuan, Lambert, and Fouladi's coefficient (1,332.76) and its normalized estimate (208.24) showed values over 5.00, inferring the nonnormally distributed pattern of the sample data (Bentler, 2006).

As the data showed incomplete and nonnormal patterns, the full information maximum likelihood (FIML) method with robust correction was employed in EQS for the CFA execution, recommended by Bentler (2006). The scaled chi-square (Yuan-Bentler, i.e. Y-B χ^2) and other indices under Yuan-Bentler's correction of the results were adopted for deciding goodness of fit for the models. This approach is regarded as an effective adjustment procedure when the model violates multivariate normality and is applied to incomplete data (Blunch, 2016; Byrne, 2008; Savalei & Bentler, 2005).

In executing the analysis on the models specified below, a typical CFA parameterization was adopted, as described in steps (a)-(d). In step (a), the first path between each designated factor (whether a learning domain or an overarching category) and its first variable (whether an assigned item or a learning domain) was set as 1.0, for the sake of model identification and latent variable scaling. In step (b), all other parameters and factor variances were freely estimated. In step (c), a constant variable V999 with no variance and a mean value of 1.0 was created for each variable equation. In step (d), covariances were freely estimated between each designated factor. For the sake of comparison, no modification such as error covariances were made to the models.

As the model chi-square test, although commonly used, is subject to a number of limitations (Hooper, Coughlan, & Mullen, 2008) and tends to be rejected as not fitting (Thompson, 2004), other goodness of fit indices, including CFI, NNFI, and RMSEA were also used for assessing the models (Tabachnick & Fidell, 2013). Since the robust correction was implemented, the values of the above indices under the results of Yuen-Bentler correction was adopted. Acceptable model fit was defined as follows: CFI (≥ .90); NNFI (≥ .90); RMSEA (≤ .08) (Bentler, 1990; Brown, 2015; Browne & Cudeck, 1992). Since a series of models (see the next section) with different factor structures were tested, model AIC indices were employed in comparing the competing

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models. These are among the most commonly adopted indices for the comparison of non-nested models by using chi-square values (Brown, 2015). The smallest AIC value indicates the best fitting model, under the condition that the models are non-nested.

Models Specification

Since S-LOMS is a newly established measurement instrument with only one prior EFA validation to support its internal factor structure, the current study tested, through a series of CFAs, whether the data fitted other possible factor structures for the instrument, besides the one already reported by Snell and Lau (2020). The seven models that were tested are represented in Table 1 and are explained next.

Model 1 serves as a baseline model, within which all items are loaded onto a single factor. Model 2 is theoretically grounded to the extent that the items are assumed to load directly onto their respective overarching categories identified in prior literature, of which there are four: knowledge application, personal and professional skills, civic orientation and engagement, and self-awareness. The developmental outcome domains such as relationship skills were omitted from this model.

Models 3 and 4 tested whether items loaded onto their corresponding developmental outcome domains irrespective of the overarching categories (developmental domains directly to corresponding items). Model 3 was theoretically based, to the extent that it comprised the original 15 domains that S-LOMS had originally been designed to measure (Snell & Lau, 2020). For example, creativity and problem-solving skills were retained as two separate domains instead of being merged into the single domain of creative problem solving skills. However, the four overarching categories were not included in this model. By contrast, Model 4 was empirically based, to the extent that it combined some pairs among the original 15 outcomes to match the 11 domains that had been discovered in the previous EFA study (Snell & Lau, 2020).

Model 5 and Model 6 involved two layers of factors, and constituted hybrids of Model 2 with either Model 3 or Model 4. Both Model 5 and Model 6 were theoretically based, to the extent that they included the four overarching categories. In addition, Model 5 included the 15 theoretically based original outcome domains, whereas Model 6 included the 11 domains from the previous EFA study.

An additional model, Model 7, was a modification of Model 6 that was created by combining the domains of sense of social responsibility with the domain of community commitment and understanding under the overarching category of civic orientation and engagement, as is explained in the next section.

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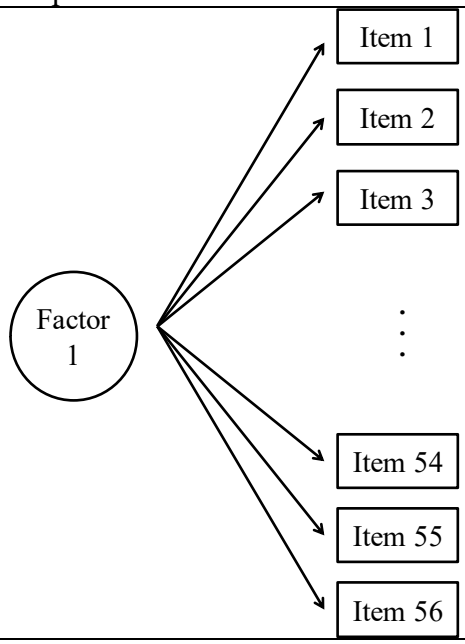
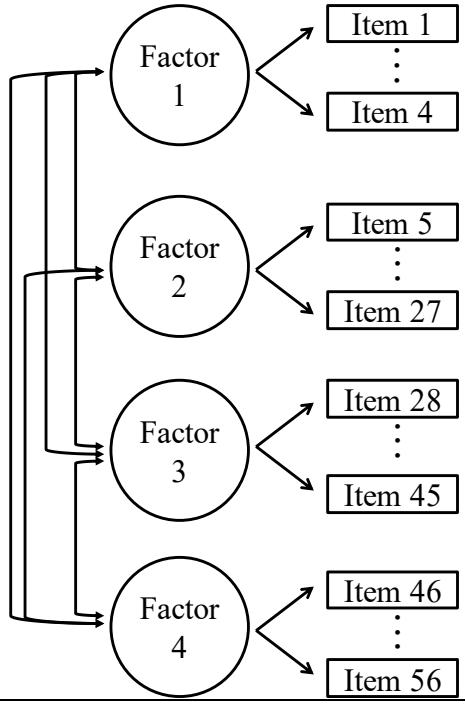
Table 1. *Model Specifications for the Alternative Models of S-LOMS*

Model	Description	Graphic Illustration
1	56 items loaded on one factor	
2	56 items loaded on four overarching categories (factors)	

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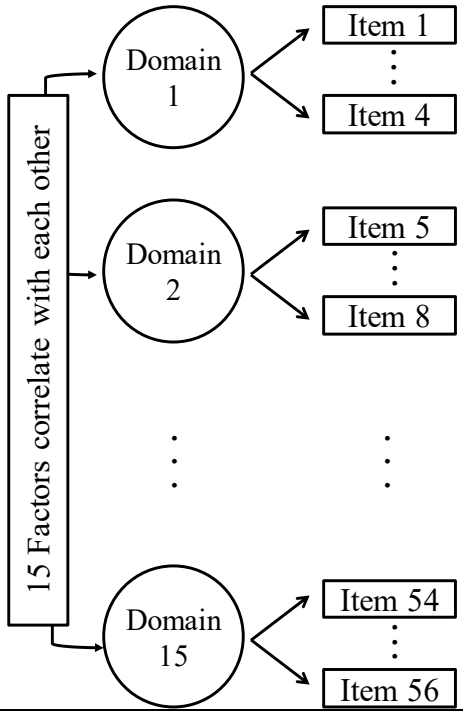
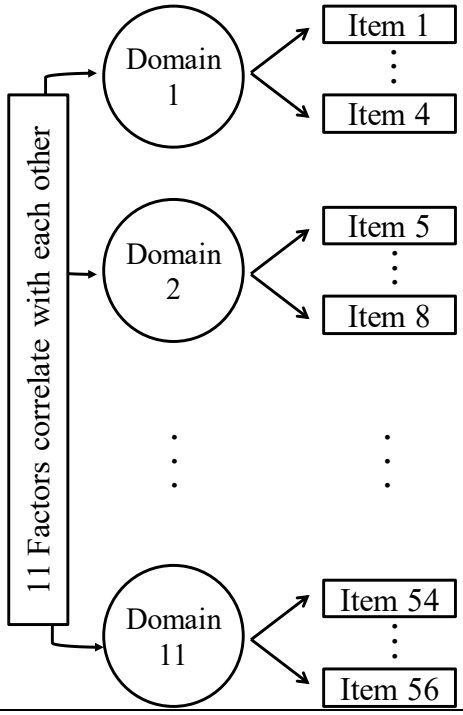
3	56 items loaded on 15 developmental outcome domains (factors)	
4	56 items loaded on 11 developmental outcome domains (factors)	

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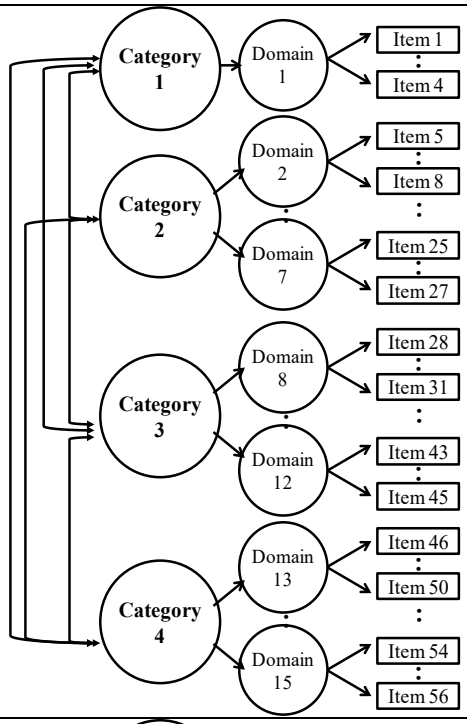
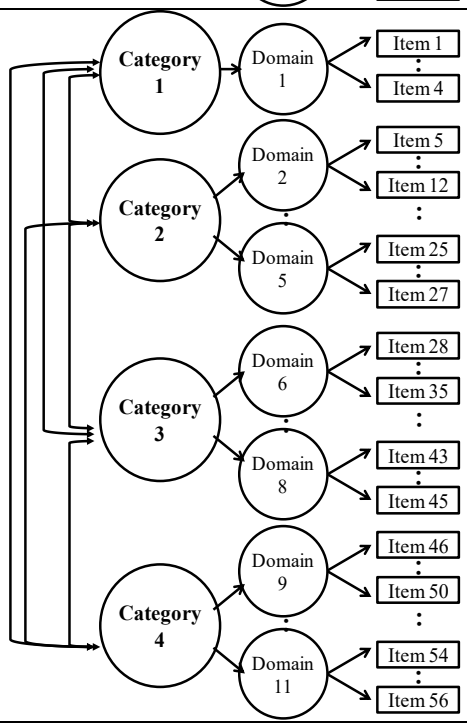
5	56 items loaded on 15 developmental outcome domains then four overarching categories	
6	56 items loaded on 11 developmental outcome domains then four overarching categories	

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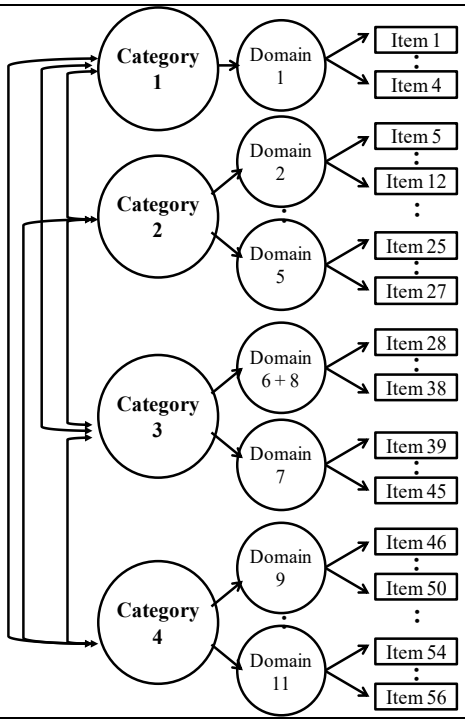
7	A modification of Model 6 with the combined developmental outcome domains of community commitment and understanding and the domain of sense of social responsibility	

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Results

Model Comparison

Table 2 reports the CFA results in terms of the chi-square test, goodness of fit indices, and AIC indices. The chi-square values for all these models were statistically significant, reflecting that large sample size increased the power of the test and thus the likelihood of rejection as not an exact fit. Accordingly, the goodness of the fit indices were taken into consideration (Bentler, 1990), and Models 3, 4, 5, and 6 demonstrated acceptable model fit, with both NNFI and CFI at marginally 0.9 or above, and RMSEA and its 90% confidence interval at or lower than .05. Moreover, all absolute values of standardized residual were small, indicating that those models fit the data well enough.

Table 2. *Fit Indices & Standardized Residuals for the Alternative Models of S-LOMS*

Item	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Y-B χ^{2} *	4,245.33	3,811.88	3,340.77	3,450.80	3,635.83	3,607.38	3,631.76
df	1,484	1,478	1,379	1,429	1,465	1,469	1,470
p	.00	.00	.00	.00	.00	.00	.00
NNFI	.870	.890	.901	.902	.897	.899	.898
CFI	.875	.894	.911	.909	.902	.903	.902
RMSEA	.054	.050	.047	.047	.048	.048	.048
90% CI	.052, .056	.048, .052	.045, .049	.045, .049	.046, .050	.046, .050	.046, .050
AIC	1,277.33	855.88	582.77	592.8	705.83	669.38	691.76
Average Absolute Standard-ized Residual	.084	.035	.034	.034	.041	.040	.040

Note: * Y-B χ^{2} denotes the Yuan-Bentler scaled chi-square values with robust correction applied. The fit indices in the table are also adopting the version of robust correction.

Comparing the AIC indices for the above four models indicates that Model 3 is the best fit, followed by Model 4, 6 and 5, in preference order. Despite being the best fit, the results for Model 3 nonetheless indicate two issues. Specifically, the factor correlations between two pairs of learning domains, namely 1) creativity and problem solving skills; and 2) commitment to social betterment and understanding community, are 1.0, and correspond to Snell and Lau's (2020) results in the earlier EFA, which led to the creation of higher-order domains, such as "creative problem solving skills". Factor correlations approaching 1.0 constitute strong grounds

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for combining multiple factors into a single factor, given the poor discriminant validity that is implied (Brown, 2015).

A similar issue was found with Model 5, which put the 15 domains under four overarching categories, in that the factor coefficient between understanding community and its overarching category of civic orientation and engagement was found to be 1.0. Because of these issues, Model 3 and Model 5 were dropped and only those models with a structure involving 11 domains were considered. Among the remaining models, Model 4 was preferred, given its low AIC value, acceptable goodness of fit (Y-B χ^2 = 3,450.80; df = 1,429; p = .00; NNFI = .902; CFI = .909; RMSEA = .047, CI = .045, .049), and good factor loadings and factor correlations.

Model 6, with 11 domains under four overarching categories, was also found to have an issue, in that the path of the domain of sense of social responsibility obtained 1.0 of factor loading from its parent category, indicating the need for further structure simplification under civic orientation and engagement. Accordingly, Model 7 was created as a modification of Model 6 by combining the two conceptually related domains of sense of social responsibility and community commitment and understanding. Model 7 obtained acceptable overall goodness of fit (Y-B χ^2 = 3,631.76; df = 1,470; p = .00; NNFI = .898; CFI = .902; RMSEA = .048, CI = .046, .050), and a relatively low AIC value (691.76). The 56 items and the 10 domains loaded with statistical significance on their respective domains and categories, nearly all with scores over .60 (except two items with loadings close to .60), while the four categories were significantly yet not perfectly correlated. Although usually more parsimonious models (i.e. Model 4) would be preferred, a more complex model may also be considered if it is based on a theory that can "substantially improve understanding of the phenomenon or can substantially broaden the types of phenomena understood using that theoretical approach" (Stevens, 2009, p. 572). In our case, the results of the CFA for Model 7 imply that S-LOMS can also further understood as a 10-domain model with four overarching categories.

In summary, while the fit indices implied that Model 4 was the best model for S-LOMS, inspection of factor loadings led to the creation of Model 7, which was retained for further consideration in the next step, where Model 4 and Model 7 were examined for their stability on gender by using multi-sample analysis.

Multi-sample Analysis

Multi-sample analysis, or the factorial invariance test, is especially suitable for testing whether a particular model structure or relationships between factors in a model is applicable across samples by different types of categorization (Schumacker & Lomax, 1996). The dataset was divided into two samples by gender (248 male and 364 female). The demographic profile, including mean age and academic backgrounds, for the two sub-samples is listed in Table 3 below. The missingness of both male and female samples revealed an acceptable pattern, with around or over 80% of the responses did not contain any missing responses. As with the previous

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analysis, the FIML method with the Yuan-Bentler Correction was employed in model estimation, given the incomplete data with the multivariate nonnormal pattern for both samples (see Table 3).

Table 3. *Demographics & Missingness of the Groups in the Multi-sample Analysis*

	Male	**Female**
No. of Respondents	248	364
Mean Age	20.21	20.71
Academic Background		
Arts	6.9%	16.9%
Social Science	11.0%	16.9%
Business	16.3%	21.9%
Engineering & Science	59.8%	27.5%
Healthcare	6.1%	16.7%
Service-Learning Experience		
Without	36.2%	32.8%
With	63.8%	67.2%
Missingness		
No. (percentage) of participants without missing responses	194 (78.2%)	314 (86.3%)
No. of missing patterns	41	37
The mean percentage of missing responses in an item	0.6%	0.3%
Multivariate Normality		
Yuan, Lambert, & Fouladi's coefficient	857.15	1,029.60
Normalized estimate	84.23	122.24

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We followed the approach recommended by Tabachnick and Fidell (2013) to perform the multi-sample analysis. We began with the baseline model for the two samples, and constrained a different parameter in each round to test whether the chi-square difference for each group between the less restrictive and more restrictive model was statistically significant. In EQS, this result is presented as the overall chi-square values of the two models against their summative degrees of freedom, in accordance with Bentler's (2006) recommendation. In this procedure, if the result is insignificant, the next step is to add another set of constraints followed by another test, with further steps taken until the result is significant. For our analysis, the parameters comprised, in order, factor loadings, factor coefficients, and factor covariances, but disturbance variances and error variances were not tested due to concern about the sub-group sample size. Model 4 and Model 7 were tested by means of the above method.

The results of the multi-sample analyses for Model 4 and Model 7 are given in Table 4. All standardized residual covariances were small over both the male and female samples, showing that both models fit the data well. For Model 4, the analysis by gender revealed that the baseline model is acceptable (summative Y-B χ^2 = 4,814.65; df = 2,858; p = .00; NNFI = .904; CFI = .911; RMSEA = .046, CI = .044, .049). Further constraining on factor loadings of the items on their domains (summative ΔY-B χ^2 = 70.07; df = 56; p = .10; NNFI = .905; CFI = .910; RMSEA = .046, CI = .044, .048), as well as on factor covariance (summative ΔY-B χ^2 = 66.28; df = 55; p = .14; NNFI = .906; CFI = .910; RMSEA = .046, CI = .044, .048) between the domains showed insignificant Y-B χ^2 change and acceptable goodness of fit, indicating that Model 4 was equivalent across gender, in terms of model structure, factor loadings, and factor covariance.

Regarding Model 7, which structures the measurement instrument items with 10 domains under the four overarching categories, the multi-sample analysis showed similar patterns, depicted in Table 4. The analysis by gender revealed that the baseline model had acceptable goodness of fit (summative Y-B χ^2 = 5,017.24; df = 2,940; p = .00; NNFI = .901; CFI = .905; RMSEA = .047, CI = .045, .049). Further constraining on factor loadings between items and domains (summative ΔY-B χ^2 = 54.49; df = 46; p = .18; NNFI = .902; CFI = .905; RMSEA = .047, CI = .045, .049), and factor coefficients between domains and their categories (summative ΔY-B χ^2 = 15.82; df = 9; p = .07; NNFI = .902; CFI = .905; RMSEA = .047, CI = .045, .049), as well as factor covariances between overarching categories (summative ΔY-B χ^2 = 1.57; df = 6; p = .95; NNFI = .902; CFI = .905; RMSEA = .047, CI = .045, .049) showed insignificant chi-square change with acceptable goodness of fit. The multi-sample analyses indicated that both Model 4 and 7 were stable across the sample by gender, with acceptable goodness of fit (NNFI and CFI at .90 or above; and RMSEA <.06).

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Reliability Analysis

Table 5 and 6 display the reliability results of the developmental outcome domains and overarching categories of the two models. These results indicate satisfactory reliability (see Lance, Butts, & Michels, 2006), with most Cronbach's alpha scores above .80 and a small number just below .80. This was the case for the entire scale (.981), for the four overarching categories (.866 to .957 for Model 7), for the 10 developmental outcome domains in Model 7 (.794 to .925) and for the 11 domains in Model 4 (.790 to .915).

Selected Models and Summary

Based on the above analyses, Model 4 and Model 7 were selected as potential final models, but with inclination toward Model 4 because of its lower AIC value. The final findings for Model 4 and Model 7, in terms of factor loadings, factor coefficients, factor correlations, and reliability indices are illustrated in Figure 1 and 2, and Table 5 and 6. All items in Model 4 and Model 7 were loaded on their designated domains and categories, except that for Model 7 the domain of sense of social responsibility was combined with that of community commitment and understanding. As a result, the constituent domains within the category of civic orientation and engagement distinguish interpersonal-level issues, i.e., caring and respect, from community-level issues. Although the structure of both models received confirmation, the high factor correlations and coefficients illustrated that a more parsimonious solution could be obtained (Brown, 2015). We will discuss this further in the next section.

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Table 4. *Multi-sample Analysis Results*

	Y-B χ^{2} *	*df*	*p*	NNFI	CFI	RMSEA	RMSEA CI	ΔY-B χ^{2}	Δ*df*	Δ*p*	Average Absolute Standardized Residual Male	Female
Model 4: The 11-domain model without upper level categories												
Baseline model	4,814.65	2,858	.00	.904	.911	.046	.044, .049	N/A	N/A	N/A	.038	.041
Factor loadings equivalent	4,884.72	2,914	.00	.905	.910	.046	.044, .048	70.07	56	.10	.055	.052
Factor covariances equivalent	4,951.00	2,969	.00	.906	.910	.046	.044, .048	66.28	55	.14	.054	.050
Model 7: The 10-domain model with upper level categories												
Baseline model	5,017.24	2,940	.00	.901	.905	.047	.045, .049	NA	NA	NA	.049	.043
Factor loadings equivalent	5,071.73	2,986	.00	.902	.905	.047	.045, .049	54.49	46	.18	.070	.047
Factor coefficients equivalent	5,087.55	2,995	.00	.902	.905	.047	.045, .049	15.82	9	.07	.065	.048
Factor covariances equivalent	5,089.12	3,001	.00	.902	.905	.047	.045, .049	1.57	6	.95	.062	.048

Note: * Y-B χ^{2} denotes the Yuan-Bentler scaled chi-square values with robust correction applied. The fit indices in the table are also adopting the version of robust correction.

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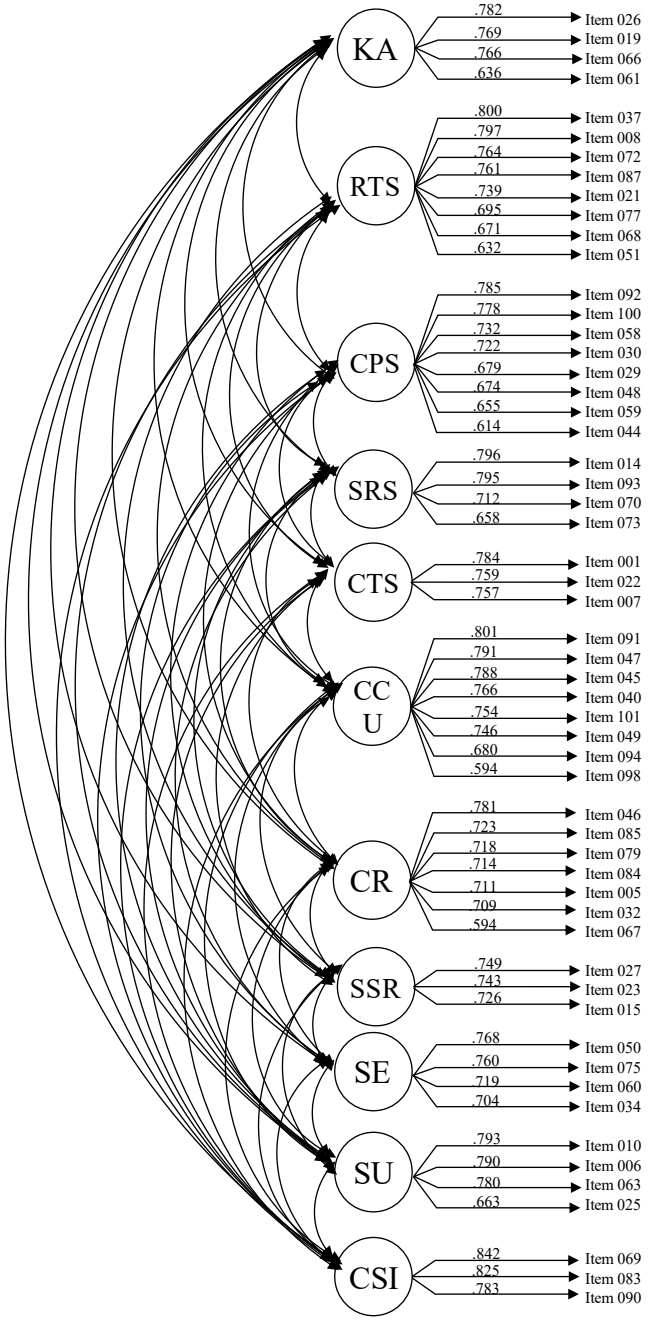
Figure 1. Standardized Item-Domain Factor Loadings* of Model 4



For intercorrelation between learning domains, please refer to Table 5

Notes: *All item-domain factor loadings are statistically significant at the .05 level. The path of the constant variable V999 to all measurement variables is not shown in the figure, for the sake of clarity.

KA: Knowledge Application; RTS: Relationship & Team Skills; CPS: Creative Problem Solving Skills; SRS: Self-reflection Skills; CTS: Critical Thinking Skills; CCU: Community Commitment & Understanding: CR: Caring & Respect; SSR: Sense of Social Responsibility; SE: Self-efficacy; SU: Self-understanding; CSI: Commitment to Self-improvement

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Table 5. *Standardized Factor Correlations* and Reliability between Domains of Model 4*

Domain**	Reliability	KA	RTS	CPS	SRS	CTS	CCU	CR	SSR	SE	SU	CSI
KA	.866	1.00										
RTS	.912	.859	1.00									
CPS	.909	.935	.970	1.00								
SRS	.818	.816	.955	.911	1.00							
CTS	.794	.771	.853	.831	.978	1.00						
CCU	.915	.806	.910	.888	.917	.865	1.00					
CR	.907	.790	.910	.891	.899	.823	.932	1.00				
SSR	.790	.822	.924	.917	.941	.883	.964	.962	1.00			
SE	.843	.807	.890	.898	.886	.828	.859	.924	.948	1.00		
SU	.805	.769	.854	.884	.897	.855	.887	.899	.943	.959	1.00	
CSI	.807	.742	.818	.824	.844	.840	.854	.825	.923	.854	.900	1.00

Notes: *All correlations are statistically significant at the .05 level

**: KA: Knowledge Application; RTS: Relationship & Team Skills; CPS: Creative Problem Solving Skills; SRS: Self-reflection Skills; CTS: Critical Thinking Skills; CCU: Community Commitment & Understanding: CR: Caring & Respect; SSR: Sense of Social Responsibility; SE: Self-efficacy; SU: Self-understanding; CSI: Commitment to Self-improvement

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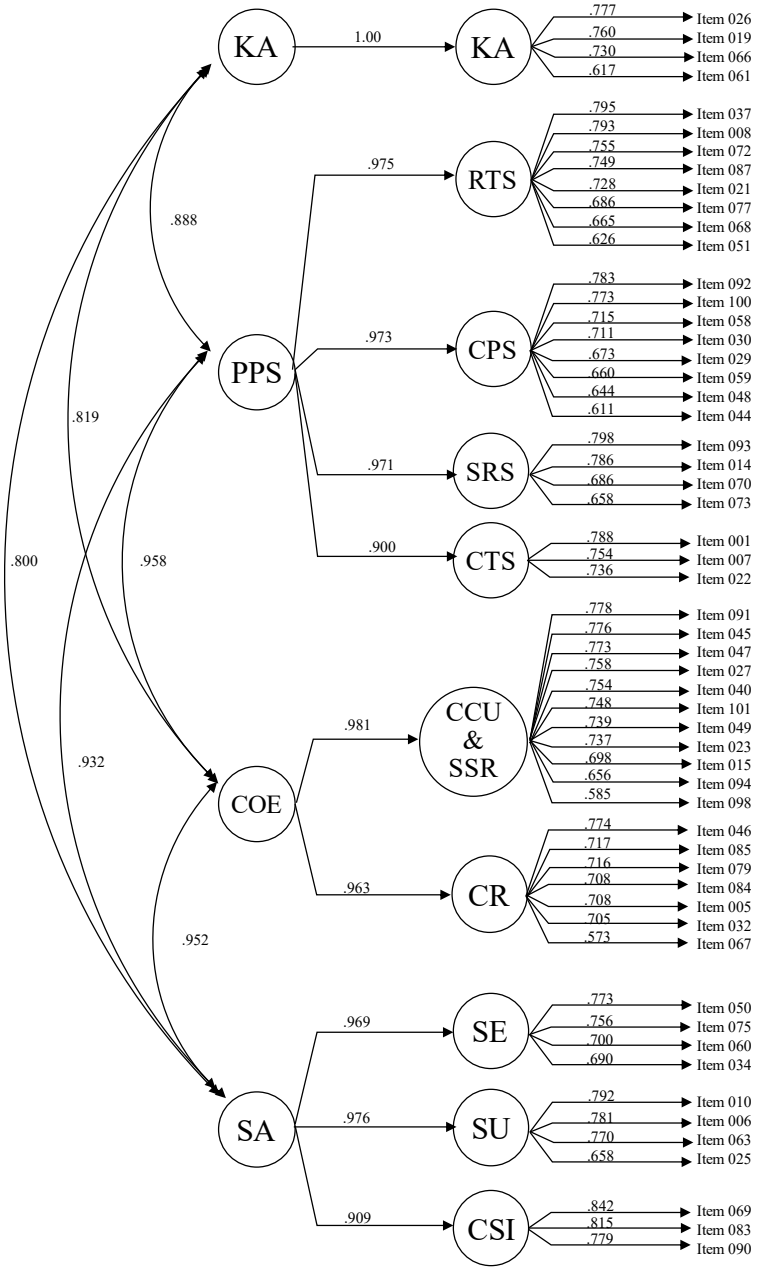
Figure 2. Standardized Item-Domain Factor Loadings and Factor Correlations * of Model 7



Notes: * All item-domain factor loadings are statistically significant at the .05 level. The path of the constant variable V999 to all measurement variables is not shown in the figure, for the sake of clarity.

For Domain: KA: Knowledge Application; RTS: Relationship & Team Skills; CPS: Creative Problem Solving Skills; SRS: Self-reflection Skills; CTS: Critical Thinking Skills; CCU&SSR: Community Commitment & Understanding, and Sense of Social Responsibility: CR: Caring & Respect; SE: Self-efficacy; SU: Self-understanding; CSI: Commitment to Self-improvement;

For Category: KA: Knowledge Application; PPS: Personal & Professional Skills; COE: Civic Orientation & Engagement; SA: Self-awareness

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Table 6. *Reliability of Model 7's Domains & Overarching Categories*

	Reliability
Category	
Knowledge Application*	.866
Personal & Professional Skills	.957
Civic Orientation & Engagement	.947
Self-awareness	.920
Domain	
Knowledge Application	.866
Relationship & Team Skills	.912
Creative Problem Solving Skills	.909
Self-reflection Skills	.818
Critical Thinking Skills	.794
Community Commitment & Understanding, & Sense of Social Responsibility	.925
Caring & Respect	.907
Self-efficacy	.843
Self-understanding	.805
Commitment of Self-improvement	.807

Note: *The cognominal category was created above the domain "Knowledge Application" for the sake of providing a clear model structure

Conclusion

By using CFA with a relatively large sample, the current study sought to confirm the dimensionality and factor structure of S-LOMS that had been obtained through EFA in a previous study (Snell & Lau, 2020). Seven alternative models were specified and tested. The results indicated that an 11-domain model without overarching categories (Model 4) was the best fit, outperforming the single factor model (Model 1) and four-category level model (Model 2) in terms of the AIC values and goodness of fit indices. By contrast, the analysis indicated that both models that contained 15 developmental outcome domains (Model 3 and Model 5) could not fit the data well, because of ill-fitting patterns in factor correlations and coefficients between particular pairs of domains. Thus, in Model 3, there was a factor correlation of 1.0 between the domains of creativity and problem solving skills, and between the domains of commitment to social betterment and understanding community; while in Model 5 a factor coefficient of 1.0 was found between the domain of understanding community and its overarching category of civic orientation and engagement. The discovery of factor correlations or coefficients approaching 1.0 indicates that there may be more parsimonious model structures (Brown, 2015), and is consistent with the EFA results in the prior study (Snell & Lau, 2020).

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Model 6, with a structure of 15 developmental outcome domains under four overarching categories was also rejected due to its factor coefficient of 1.0 between the domain of sense of social responsibility and its overarching category of civic orientation and engagement. Model 7 was therefore created based on a modification of Model 6, with the two domains subsumed under the overarching category of civic orientation and engagement. The first of these domains, a composite of community commitment and understanding and sense of social responsibility, reflects concern for societal level issues. The second domain, caring and respect, reflects interpersonal-level sensitivity. Acceptable goodness of fit was found between the data and Model 7, albeit with an AIC that was larger than for Model 4. Both the 11-domain model without overarching categories (Model 4) and the 10-domain model with four overarching categories (Model 7) were found to be invariant in terms of factor structure, factor loadings, factor coefficients, and factor correlations between male and female groups in the sample, indicating the stability of both models across gender (Schumacker & Lomax, 1996).

The results, indicating preference for 11 over 15 developmental domains, confirmed the previous EFA findings of Snell and Lau (2020). Specifically in Model 4, creativity and problem solving skills were combined into creative problem solving skills; relationship skills and team skills were combined under relationship and team skills; community understanding and commitment to community were integrated under the community commitment and understanding; and empathy and caring for others along with respecting diversity were subsumed under caring and respect.

The four overarching categories confirmed in Model 7 are consistent with typologies of the major developmental outcomes of service-learning in the past literature, which include academic enhancement, personal growth and civic learning (e.g. Driscoll et al., 1996; Elyer & Giles, 1999; Elyer et al., 2001; Felton & Clayton, 2011). Model 7 also includes self-awareness as an overarching category, which was created by Snell & Lau (2020) to capture the developmental outcomes associated with Confucian self-cultivation, which has influenced tertiary education policy in Hong Kong. At the developmental outcome domain level, Model 7 further reduces the number of domains from 11 to 10, by combining sense of social responsibility with community commitment and understanding. In summary, by comparing the 11- and 15-domain structure through CFA with a new sample, the current study confirmed that S-LOMS can be structured as an 11-domain model (Model 4) without an overarching category level, which was a better fit with the data than the alternative models. Nonetheless, the study also offered some support for a model with 10 developmental outcome domains under four overarching categories (Model 7), resembling the findings of past literature. Multi-sample analysis indicated that both Model 4 and Model 7 were stable across male and female groups in the current sample.

Practical Implications

Because of the satisfactory factor validity and internal consistency reported above, S-LOMS offers flexibility in how the developmental impacts on students engaging in service-learning can

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be measured, with a number of options besides using the entire 56-item scale. For example, an instructor with a specific interest only in the two developmental outcome domains of critical thinking skills, which has three items, and creative problem-solving skills, which has eight items, need only use those 11 items for measurement, thereby streamlining the data collection process. Another example is that an investigator, who wishes to focus on measuring impact within the overarching category of civic orientation and engagement need only use the 18 associated items instead of the entire S-LOMS. Thus, S-LOMS can be administrated flexibly in accordance with instructors' or researchers' needs. Overall scores for any particular developmental outcome domain can be derived by averaging the scores of the associated items. It is assumed that investigators would adopt a pretest-posttest research design for measuring developmental impacts.

Limitations and Further Studies

The first limitation lies in the level of fitness of the models in the current study. Although both Model 4 and 7 achieved acceptable goodness of fit indices (i.e..90 or above for NNFI and CFI), they did not meet the satisfactory level, which is .95 for NNFI and CFI indices (Hu & Bentler, 1999). Further studies should apply S-LOMS into more new samples to test whether consistently satisfactory goodness of fit indices can be obtained, and if so, discover what modifications are necessary in order to achieve this. The second limitation arises from the multivariate non-normality of the data from the current sample, resulting in bias over the ML methods in model estimation. Despite our attempt to apply corrections through Yuan-Bentler correction with the FIML method, other researchers have stated that better results can be achieved by adopting a two-stage robust method for non-normal missing data (e.g. Tong, Zhang, & Yuan, 2014), and further studies can consider adopting the latter approach.

Third, the numerous factor correlations and factor coefficients exceeding .85 that were found for both Model 4 and Model 7 warrant attention. They imply poor discriminant validity (Brown, 2015) and may raise questions about the unique predictive validity of their individual factor. Further research is thus required into the predictive validity of S-LOMS's domains and categories. Further limitations, in the case of Model 7, concern the high factor coefficients between the 10 domains and their corresponding overarching categories, as well as the high factor correlations between the overarching categories. This phenomenon matches the observation by Snell and Lau (2020) that although the four overarching categories are conceptually distinct, they are empirically inter-related. The limitation of high factor correlations and coefficients suggests that S-LOMS may need further refinement, and that there is scope for testing a set of simplified models against data from new samples.

Despite the above limitations, the current study has provided empirical evidence about the construct validity of S-LOMS, from which further validation work can be done. The next steps being undertaken include validating test-retest reliability over an interval of time, and testing

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criterion validity by administering S-LOMS under a pretest-posttest design with service-learning as the intervention in between.

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Author Note

This paper results from a cross-institutional project named "Cross-institutional Capacity Building for Service-Learning in Hong Kong Higher Education Institutions (PolyU4/T&L/16-19)" which aims to enhance and support the development of service-learning as an effective pedagogical strategy under the collaboration of Lingnan University, The Hong Kong Polytechnic University, Hong Kong Baptist University, and The Education University of Hong Kong. The project was launched in 2017 and has been funded by the University Grants Committee (UGC) of the Hong Kong Special Administrative Region (HKSAR) government. The authors wish to thank the UGC for funding the project, and the above institutions for their participation in the process of scale development and validation.

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Appendix 1. Items, Developmental Domains and Overarching Categories of S-LOMS

Items No in scale	Domain*	Item
Category: Knowledge Application		
019	Knowledge Application	I know how to transfer knowledge and skills from one setting to another.
026	Knowledge Application	I can make connections between theory and practice.
061	Knowledge Application	I am able to apply/integrate classroom knowledge to deal with complex issues.
066	Knowledge Application	I know how to apply what I learn in class to solve real-life problems.
Category: Personal and Professional Skills		
008	Relationship Skills	I am good at building relationships between people.
051	Relationship Skills	I can easily establish effective relationships with people.
068	Relationship Skills	I can build long-term relationships with people.
072	Relationship Skills	I am good at keeping in touch with people.
021	Team Skills	I have the necessary skills for making groups or organizations function effectively.
037	Team Skills	I am good at resolving conflicts.
077	Team Skills	I am confident in leading others toward common goals.
087	Team Skills	I participate effectively in group discussions and activities.
030	Problem-solving Skills	I am able to solve challenging real-life problems.
044	Problem-solving Skills	I feel confident in dealing with a problem.
059	Problem-solving Skills	I often modify my strategies to solve a problem when the situation changes.
100	Problem-solving Skills	I feel confident in identifying the core of a problem.
029	Creativity	I am not afraid of trying new things.
048	Creativity	I am able to generate original ideas.
058	Creativity	I am able to look at an issue from a fresh perspective.
092	Creativity	When necessary, I can think of alternatives.
014	Self-reflection	I always think how I can improve myself.
070	Self-reflection	I will evaluate myself after completing a task.
073	Self-reflection	I consider circumstances when reflecting on how well I have performed.
093	Self-reflection	I reflect on myself regularly.
001	Critical Thinking Skills	I can analyze an issue comprehensively.
007	Critical Thinking Skills	I often look at complex issues from different angles.
022	Critical Thinking Skills	I can understand others' viewpoints when we are making decisions together.

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Category: Civic Orientation and Engagement		
040	Commitment to Social Betterment	I think about how I can serve the community after graduating.
047	Commitment to Social Betterment	I will play my part to reduce social problems.
049	Commitment to Social Betterment	I always actively discuss possible improvements for our community.
091	Commitment to Social Betterment	I will contribute my abilities to make the community a better place.
045	Understanding Community	I can identify challenges in the community.
094	Understanding Community	I can investigate the challenges faced by people in need in a community.
098	Understanding Community	I can identify issues that are important for a disadvantaged community.
101	Understanding Community	I can identify useful resources of a community.
005	Respecting Diversity	I can respect people whose background is different from mine.
046	Respecting Diversity	I am willing to try to understand people whose background is different from mine.
067	Respecting Diversity	I respect the needs of people from different backgrounds.
084	Respecting Diversity	I appreciate the ideas of people from different backgrounds.
032	Empathy and Caring for Others	I observe others' feelings and emotions.
079	Empathy and Caring for Others	I consider others' points of view.
085	Empathy and Caring for Others	I care about others.
015	Sense of Social Responsibility	I believe that taking care of people who are in need is everyone’s responsibility.
023	Sense of Social Responsibility	I feel obligated to help those who are less fortunate than me.
027	Sense of Social Responsibility	I believe that everybody should be encouraged to participate in civic affairs.
Category: Self-awareness		
034	Self-efficacy	Most things I do, I do well.
050	Self-efficacy	I have many good qualities.
060	Self-efficacy	I am satisfied with my achievement so far.
075	Self-efficacy	I am positive about myself.
006	Self-understanding	I have a clear picture of what I am like as a person.
010	Self-understanding	I know my strengths and weaknesses.

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025	Self-understanding	I have a clear understanding of my own values and principles.
063	Self-understanding	I know what I need in my life.
069	Commitment to Self-improvement	I am always motivated to learn.
083	Commitment to Self-improvement	I always keep my knowledge and skills up-to-date.
090	Commitment to Self-improvement	I look out for new skills or knowledge to acquire.

Notes: * In Model 4, the following higher order domains were formed: 1) Creative Problem Solving Skills, by Creativity and Problem Solving Skills; 2) Relationship & Team Skills, by Relationship Skills & Team Skills; 3) Community Commitment & Understanding, by Commitment to Social Betterment and Understanding Community; and 4) Caring and Respect, by Empathy and Caring for Others and Respecting Diversity.
In Model 7, an additional composite domain was formed, namely Community Commitment and Understanding and Sense of Social Responsibility, by combining Sense of Social Responsibility and Community Commitment & Understanding.

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Original Research

Improving Workforce Readiness Skills among College Adult Learners through new Technologies: Lessons from Two Schools

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Abstract

Employers report struggles to find work-ready candidates who possess a desired combination of job-specific technical, general math and reading, and social and behavioral skills. Community colleges are ideally situated to address these shortages, delivering a trained local labor force and often collaborating directly with employers and regional development boards to ensure the employability of their students and the economic vitality of their regions. One tactic to address these shortages is to introduce trainings geared directly toward soft and basic skill development. This paper presents case studies of two schools that use technology-enhanced trainings to incorporate work-readiness skill trainings in career technical education programs that are (1) flexible and learner-centric due to technology-enhanced delivery, and (2) use evidence-based assessment and intervention strategies to promote soft skill and literacy expectations. The trainings were provided by a non-profit education research and measurement company, which served as developer and research partner for the community colleges. Results demonstrate adult learner satisfaction and commitment with these blended learning and mobile technology solutions. The authors discuss factors that facilitate training success, which include securing student buy-in and developing collaborative partnerships.

Keywords: workforce development, adult learners, career and technical education, critical skill development, social and behavioral skills

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Introduction

In the United States and globally, in cities and the regions they anchor, the knowledge and skills that employers, workforce preparation programs, and postsecondary institutions require have changed. Today, employers demand increased education and training as prerequisites for jobs (Casner-Lotto & Barrington, 2006; Hart Research Associates, 2015; Institute for a Competitive Workforce, 2012; Levy & Murnane, 2004). The increase in educational requirements is largely driven by skills gaps reported by employers. In addition to concerns about job-specific technical skills, employers report gaps in two critically important skill domains. First, for today's complex technological economy, workers lack requisite cognitive and academic proficiencies (OECD, 2013). The second gap is a lack of proficiency across a broad array of behavioral competencies, which have been demonstrated to be instrumental to workplace success (Casner-Lotto & Barrington, 2006; Deming, 2017; National Research Council, 2011). These competencies sometimes have been referred to as "non-cognitive skills," "socio-emotional skills," "21st century skills," "work readiness skills," "soft skills," or "employability skills" (see Campion et al., 2011; Parry, 1996). While technical skills help workers in specific jobs, noncognitive skills tend to be important for a wide variety of jobs. Taken together, these can be considered essential skills.

Community colleges are well-positioned to be part of the solution in developing these competencies through affordable education that is often geared toward job-related skill development. With expanding portfolios in workforce development, the role of community colleges in directly meeting the skill demands of today's employers is also expanding. This paper presents two community colleges serving urban students that recently worked with a partner institution (Educational Testing Service, or ETS, a non-profit educational organization) to pilot novel, technology-supported and evidence-based approaches to instilling critical competencies in adult learners. In both schools, the guiding research goal was to understand challenges and facilitating factors that accompanied the use of expanded remote technology to support essential skill development, and how these technologies were received by students. This paper highlights some of the implementation factors that supported success, including securing student buy-in and building organizational partnerships. Lessons across these programs can be used to inform future efforts to help students improve in these essential skill areas for workforce success.

An Evolving Understanding of Essential Skills

Cognitive competency and behavioral competency have different standing in formal education systems, community colleges included. Cognitive competencies are the basic knowledge and skills, such as reading, writing, math, and content/technical knowledge of facts and processes that are part of traditional academic curricula, typically the domain of developmental education. Behavioral competencies incorporate aspects of conscientiousness/ motivation that are distinguishable from cognitive skills, and are comprised of skills which primarily reflect

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intrapersonal and interpersonal qualities such as initiative, resilience, teamwork, and responsibility. In some sense, different disciplines and industries may incorporate elements of cognitive and/or behavioral competencies as part of their education or career training.

Educators have long understood that cognitive competencies are skills that can be developed over time, and community colleges endeavor to provide opportunities for students to develop these essential skills for career success. Three cognitive skill domains that comprise essential skills for both college and the workplace include prose/literacy, document/information use, and numeracy. These domains have been a central focus of cognitive skills and literacy assessment for more than 100 years (Kell & Lubinski, 2013; Kirsch, 2001; Resnick & Resnick, 1977) and continue to be critical to success in 21st century environments (OECD, 2013). As noted by the OECD, "at the most fundamental level, literacy and numeracy skills constitute a foundation for developing higher-order cognitive skills… and are essential for gaining access to and understanding specific domains of knowledge" (OECD, 2013, p. 56). Many students arrive at college prepared to function and expand in these skill domains; developmental education courses, a varied network of programs designed to prepare students academically for college-level work, are offered for those who require remediation.

Unlike cognitive competencies, behavioral competencies have only more recently been understood as malleable skills that can be developed, and are perhaps equally important for personal and professional success in the growing global marketplace (National Research Council, 2011). Behavioral skills rarely are taught systematically on any educational level (Kirsch, Braun, Yamamoto, & Sum, 2007; National Research Council, 2012; cf. U.S. Department of Education, n.d.). Furthermore, the existing means, programs, and venues for assessing, developing, and supporting these competencies are not sufficient (National Research Council, 2012). Behavioral competencies programs are created and administered on an ad hoc basis and participation is often voluntary; the wide variety of methods deployed include workshops, courses, credentials, and career services programming (Noe, 2020). The existing evidence of valid and effective curricula and instruments to support career readiness skills development is limited; improving the evidence base of optimal implementation, program applicability and transportability between contexts, and the efficacy of cognitive and behavioral competency skill programs is an important task for workforce development today.

Promising Applications of Technology to Support Community College Students

Understanding that essential skills are malleable and valued by employers, it is important to identify systematic ways to improve proficiency among learners. To that end, the authors present some applications of technology that may be ideally suited to community college learners, by introducing flexibility into the learning process. As with any technology in the learning environment, it is important to examine our assumptions (Kruger-Ross & Holcomb, 2012).

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Community colleges have diverse student bodies with specific learning challenges. Being predominantly adult learners and non-traditional students, community college students are often balancing competing demands of work and family that can hinder participation in traditional, classroom-based coursework. The two cases presented in this paper are deploying technology that extends learning beyond the traditional classroom, introducing flexibility to the learning process.

Blended Learning Maximizes Remote Learning

Online learning confers several benefits, such as (1) allowing for a scalable and standardized delivery of the assessment and curriculum, (2) immediate feedback and explanations for learners on the end-of-module knowledge checks, (3) the ability for instructors to monitor student progress in the online system, and (4) virtual access to instruction and practice opportunities outside of the classroom, an important capability particularly with adult learners. However, courses can also be designed from the bottom up to blend elements of both remote and classroom-based learning. This blended learning approach has been shown to be more effective than pure online learning or instructor-led courses, particularly at the postsecondary level (Means et al., 2013). Compared to pure online models, blended learning models leverage the role of the instructor, in-class group work, and whole-class discussion to facilitate engagement, critical thinking, and exposure to different viewpoints and perspectives, while allowing for opportunities for students to provide and receive in-person feedback (Garrison & Vaughan, 2008). This also facilitates what others have called a "situated" learning environment, an environment that is believed to be particularly effective for adult learners which promotes learning by allowing learners to bring their prior knowledge and experiences into the learning setting and construct new knowledge through interactions with their peers, their instructor and instructional materials and activities (Brown et. al, 1989). Finally, the in-class component of the curriculum allows instructors to provide additional support, including one-on-one support, to students who may be struggling with making progress in self-directed online content.

Remote, Mobile-enhanced and Online Technology Allows Learners to Engage at Their Convenience

One way to create a blended learning experience in an existing course is to add remote elements. App-based mobile technology offers two important pedagogical features: (1) instructional content presented in small "chunks" or "micro lessons" that allow for rapid absorption and rehearsal, and (2) practice test items with immediate feedback. With respect to the first feature, Fulantelli, Taibi, and Arrigo (2015) highlight the importance of content relevance, learner control of the learning process, and explicit and manageable activities in a proposed task-interaction learning analytics framework for mobile learning. These notions reflect the broader research on practice and successive relearning and rehearsal (c.f. Dunlosky & Rawson, 2015).

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The mobile learning lessons and exercises used in these case studies reflect the critical pedagogical features highlighted by Fulantelli et al. (2015) in that they are based on both relevant and contextualized essential micro-lessons with training content that is based on evidence-based learning progressions that inform instructional content. Further, learners dictate when and where they participate in the training. With respect to the second feature, whether called retrieval practice, practice testing, or test-enhanced learning, it has been well-documented that practice with immediate feedback helps optimize learning (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013; Roediger & Butler, 2011).

While literature exists in various form regarding the use of technology in learning, or how to build essential skills, to date there is little work on how to use technology to build essential skills. In 2019, ETS partnered with two community colleges to pilot technology-enhanced essential skills trainings, working with each school to deliver foundational skills alongside their programs as part of two separate, but related research studies on essential skills development; one school delivering cognitive essential skill training, and the other delivering behavioral essential skill training. The ETS team evaluated these programs to understand challenges and facilitating factors that accompanied the use of expanded remote technology to support essential skill development, and how these technologies were received by students.

Methods

The two school pilots are approached as case studies, which were designed to determine efficacy and identify best practices for imparting essential skills to community college learners. In both cases, the training was provided at no expense to the schools by the research unit of ETS, which also paid implementation costs for the study. Both cases are designed as implementation evaluations and include data collections from students as well as faculty and staff of the institutions. Our data are drawn from several sources, including pre- and post-course surveys, interviews with faculty and administrators, and student focus groups Results are shared by school, demonstrating the challenges and possibilities of efforts to bring behavioral and cognitive skill development to these students with blended learning models.

The two programs are profiled in Table 1. Case Study 1 occurred in the continuing studies program at a large northeastern community college serving a state capital with roughly half minority enrollment, largely black. Case Study 2 occurred in two different departments and courses, the Department of Adult Education and the School of Arts & Sciences' College Readiness Department, at a very large two-year Midwestern college that serves a large proportion of career technical education students in a major city, with a majority enrollment of minorities, largely Hispanic. Results are framed around the key stakeholders in each system: the students, and the instructors and college personnel. The authors provide discussion about each case before turning to general discussion across cases.

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Table 1. Profile of two case studies

	Case 1	Case 2
Region	Northeast	Midwest
School size	5,000-9,999	Over 10,000
Essential skills covered	Behavioral	Cognitive
Technology	Web-based lessons	Mobile app
Program location	Standalone, non-credit course	Embedded into developmental education and adult learning courses

Case Study 1

This case study featured a standalone eight-week course offered through the school's continuing studies program during the Summer and Fall terms of 2019. To participate in this free course, the only pre-requisites were (a) to be at least 18 years old and (b) to have either a high school diploma or high school equivalency credential. Topics included initiative, perseverance, responsibility, flexibility, resilience, teamwork, citizenship, customer service orientation, problem solving, and ingenuity. Participants self-enrolled in either an enhanced self-directed or a more fully blended learning version of the course; both featured the same content and were run concurrently by the same instructor. In both versions, students were expected to attend the first and last session in-person. During the first session, students completed a personality assessment and reviewed the score report with the instructor, received an overview of the course design and expectations, and participated in data collection via student experience surveys. During the last session, students de-briefed with the instructor on their experiences and participated in post-course data collection via surveys and/or focus groups.

The enhanced self–directed cohort completed eight online training modules, along with any pre-work or homework assignments, independently and at their own pace, and therefore had a "blend" that favored more flexible and independent learning. This was the less popular version, with only three students enrolling in the first semester the program was offered, and one in the second. The fully blended learning cohort completed the online training modules as homework on a weekly basis and participated in a one-hour in-person session at the institution, and therefore had a "blend" that comprised roughly half flexible and independent learning, and half in-person engagement and support. The instructor reviewed portions of the online modules and geared most of the class time towards engaging in activities, facilitating discussions and extending the lesson with relevant handouts. Both versions of the course featured brief knowledge checks upon the completion of each online learning module, which were multiple choice and demonstrated the cognitive skill that was the subject of each lesson.

The course experienced low enrollments that resulted in only 13 student completions across two class cohorts. The instructor and administrator each shared their perspectives in a formal exit interview and through ongoing check-ins with the research team. Across cohorts, the

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race/ethnicity of the 13 participants was White (31%, n=4), Hispanic (31%, n=4), Asian (23%, n=3), and Black/African American (15%, n=2). The participants were primarily female (77%, n=10) and held at least an associate's degree (69%, n=9). Initially during the summer 2019 course, 10 students registered for the WorkFORCE Program for Career Development course, which included seven students for the blended learning course and three students for the enhanced self-directed course. However, only five blended learning students and three enhanced self-directed students (a) consented into the study (b) attended the first session, and (c) proceeded with attending the subsequent courses. For the fall 2019 course, nine students attended the first day of class, with five students persisting to the end of the course. All students who completed the course participated in the post-course survey, but with only 13 respondents our focus was on the qualitative-based open-text response items rather than numerical analyses.

Case Study 2

This case study integrated a mobile learning training platform (the app) for cognitive skill development as a required component of existing developmental education and adult education programs. This consisted of 150 micro-lessons plus practice items to be delivered on learners' mobile phones via a text messaging app. These lessons are tied directly to the essential literacy domains in the cognitive assessment, which is an assessment of abilities in prose, documentation, and quantitative literacy.

Students were given a cognitive assessment of their literacy skills at the beginning of the fall 2019 academic semester, the results of which were shared with the instructors. Students then completed at least eight hours of mandatory homework on a mobile training app over the course of 8 weeks. At the conclusion of the eight weeks, the cognitive assessment was given again, along with a brief survey of student perceptions of the program. The two classes were a non-credit (pass or repeat) Language Arts GED/Adult Education class held twice a week for 3.5 hours at a time and an introductory college reading and writing Developmental Educational class, also non-credit, held twice a week for 2.25 hours at a time. Students completed at least eight hours of mandatory homework on a mobile training app over the course of 8 weeks. At the conclusion of the eight weeks, the cognitive assessment was given again, along with a brief 31-item survey of student perceptions that was administered online. The study team also conducted two 30-minute focus groups to inquire about students' hands on experiences in using the app and their perspectives on the usefulness of the app in improving their literacy skills; and a 30-minute phone interview with each instructor. The focus groups, led by the deans of the two departments, were audio-recorded and analyzed by the research staff.

The two instructors played a key role in the implementation of the training intervention by acting as moderators or brokers of the process. First, they provided feedback to the research team on all aspects of the training materials and process, including the assessment process, the score report, and alignment of the mobile app content with their teaching goals. They did this both during the

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implementation and also in interviews after its completion. They also gauged students' reactions to the training intervention and keeping the research team abreast of the how the intervention was being received. Instructors sent emails, at times on a daily basis, to share their feedback on students' reactions and the pulse of the classroom. Administrators also provided feedback to the research team through check-in emails and reviews of the initial project report.

In Case Study 2, 34 students enrolled across both classes. with 21 CTE learners (a) consenting to the study, (b) attending the first session, and (c) proceeding with attending all subsequent courses. More than half of the participants (57%) identified as Hispanic. The rest were Black/African American (24%) or White (14%).

Results: Instilling Essential Skills in Community Colleges

The discussion is framed around the key stakeholders in each system: the students, and the instructors and college personnel. We provide discussion about findings specific to each case before turning to the general discussion across cases.

Case Study 1: Voluntary Behavioral Competencies Training

In the following results, the authors explore the experiences and perspectives of the various stakeholders (i.e., students, administrators, and instructor) to assess the quality of the training, and then explore factors that created challenges for implementation of the course. Unless otherwise noted, both the strengths and potential areas for improvement are echoed across the various data sources and course offerings (i.e., summer and fall 2019, enhanced remote versus a more blended learning model).

Student Perspectives

The following findings are drawn from open response items on post-course student surveys.

Motivations for Participation. Participants reported that they were motivated to register for the training because they viewed it as a preparatory course for career development to start or re-enter the workforce or an opportunity to enhance their job skills. Given that the training program provides scaffolded material in the curriculum that supports participants in these areas, it appears that the participants had goals and expectations that were aligned to the overall objective of the course.

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For instance, a few students shared in student surveys:

- "I want to learn to prepare for working. I want to learn how to solving problem [sic] and communicate with people in work."
- "I'm looking for a job now and would like to be prepared better in advance."
- "I think this is my first step to start my career."

According to survey data, if given the opportunity to retake the course, the majority of participants would be primarily motivated by the incentive of a certificate of completion or feedback on their skills.

Satisfaction with Content and Delivery. Overall, student respondents were satisfied with the program's socio-emotional benefits and work readiness preparations, reporting increased confidence in their ability to use soft skills such as teamwork and responsibility. They also found the online modules easy to manage, informative, and visually stimulating. Students felt more equipped with work readiness skills to pursue new forms of employment and more confident engaging in the hiring process.

For example, some students shared:

> "The whole training with all the modules are really helpful for people to get prepared for [an] interview. And I think this will be very beneficial for the students when they graduate college."

> "So, I've never worked before. I mean, it's been like ages [since] I stopped working. I was a little bit nervous how will I get trained, and how will I start my first job and how will I go for interview, what they'll ask me and all that stuff? But after coming through this course, it made me really more confident. I was happy throughout the course. I mean, I've learned many things and I'm ready for a new job."

The program offered these students targeted training that increased their confidence as they prepared for the job market. In another instance, a blended learning student shared that the module transcriptions and captions were very beneficial in helping the student comprehend and learn the content, which was an advantage of the format because English was not the student's primary language.

Instructional Quality and Assessment. When reflecting on the instructional delivery of the course content in summer 2019, both the blended learning and self-directed students also shared an appreciation for the high level of interaction and engagement the instructor provided. The blended learning environment featured opportunities for students to share experiences and learn from one another. For the self-directed group the instructor also provided weekly email check-ins with the students and gave the students feedback. The instructional assistance was so well-received that the self-directed students recommended the instructional support be increased to twice per week. In reference to the Knowledge Check assessments, all the respondents either

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agreed or strongly agreed that they were comfortable with the process of completing the assessment and the assessment results made sense to them. In this same vein, all the participants agreed that the assessment gave them a better sense of what they can work on to be a stronger student or employee.

Room for Improvement. While students were generally satisfied with the course offering, they also provided suggestions for areas needing improvement. For instance, multiple students suggested lengthening the blended learning course from one hour to two hours, because they believed the dialogue and constructive feedback with colleagues and the instructor were very useful, but often limited due to time constraints. Students also recommended a follow-up course be offered to students so that students could continue to access and learn from the modules.

Additionally, survey data showed that participants also identified technical problems with the internet modules and issues of alignment with career values as areas for improvement. Offering possible recommendations to strengthen the course, participants shared a desire to engage with more realistic examples, engage directly with career services, and receive hardcopies of the course materials, indicating they craved a learning experience that was further contextualized, a promising model (Fulantelli et al., 2015).

Instructor Reflections Support More Blended Model. Overall, the instructor shared that his primary goal was to build students' confidence with each soft skill introduced in the program. For instance, the instructor shared, "If they [students] can come away feeling more confident about themselves as an employee and how they handle situations at work, then I think, they got out of it what they should have." During the eight-week course, the instructor found the implementation of the curriculum, correspondence, and resources (e.g., modules, videos, and pre-work articles) well-prepared and useful. However, he encountered inconsistent student attendance, and noted that low accountability due to the voluntary nature of the program was an ongoing challenge. When students attended class, time constraints also posed as a challenge because the 60 minutes allotted did not provide enough opportunity to engage in discussions. The instructor also noted that the self-directed students had low student participation in written discussions, which he found somewhat problematic.

The instructor also reflected on the possibility of converting the course to be credit bearing, recommending that the type of course and number of students within the selected course be considered to determine the adequate length of time for the training. If engagement and student participation is important, the instructor felt that increasing the program length to more than 60 minutes would give students the opportunity to engage in meaningful conversations and share their experiences. The instructor also felt that there should also be higher expectations on the student workload, more clearly defined logistics on how it will be implemented within a class

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setting, and an expansion on the importance of the program. Given the instructor's feedback, the blended learning version of the course appeared to be the optimal condition.

Supporting Equity. In interviews, the program administrator shared that she was initially unsure about the relevance of the training, which was novel for the continuing studies department. However, after seeing the course in action and receiving positive feedback from the instructor and students, she felt that the training was very beneficial to the department. Since the non-credit bearing centers are revenue-driven, the administrator noted that it could have been difficult to implement the program if there were not the funds provided to assist with implementing the course.

Students represented various age groups and life experiences, and therefore work and educational experiences also varied. The administrator remarked that the program provided an important avenue for students to become more marketable, sharing,

> "Some are new immigrants; some are individuals who are restarting their careers maybe after a long gap. So, they come to non-credit to get these types of trainings to get back into a marketable individual in the marketplace. Sometimes, we have individuals who are struggling to find a way as to why they are not progressing in professional world despite of having the training. So, this could be the missing piece for them."

Given the students the administrator noted to benefit from the program, it was a useful way to close key equity gaps in the job market. Beyond the credit bearing courses, the administrator also recommends offering the program to bilingual programs to help bridge the cultural gap.

Case Study 2: Integrated Cognitive Skills Program

In the following results, the authors explore the experiences and perspectives of the various stakeholders (i.e., students, administrators, and instructor) to assess the quality of the training, and then explore factors that created challenges for implementation of the course. In general, students became more confident in their reading skills because of using the app, and many also noted the ease of accessing the app's content at any time. Instructors felt the students were excited to use the app for homework and felt the content on the app aligned well with their teaching goals.

Satisfaction with Content and Delivery. Participants cited three main ways they benefited from using the app during the semester including (a) the ease of learning anywhere/anytime, (b) the feedback and explanations provided by the app when an answer was incorrect, which helped to increase their reading skills and reading comprehension, and (c) the skills the app taught them in scanning the paragraph for answers to their questions and looking for keywords. With respect to ease of learning, eleven of the adult learners reported they used the app for short chunks of time, for instance, after their workday, while cooking, while waiting at the doctor's office, or when

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relaxing after dinner. On the other hand, six adult learners used the app for extended periods of time, and four learners said they used it both ways. The learners reported they enjoyed the convenience the app gave them to learn the way they preferred and when they preferred. With respect to improving reading skills and scanning skills, nine of the adult learners reported feeling like the app was very useful in increasing these skills. In terms of text messages that were sent to participants after a certain period of non-activity, eleven students agreed that the text messages motivated them to open the app and work on the practice lessons.

App and Assessment Experiences. With respect to the pretest, a majority of the 21 student survey respondents indicated that seeing the score report from their initial pre-course assessment increased their desire to improve themselves. Eight students were satisfied with their scores, while eleven were neutral. With respect to the training app, participants generally reported they liked using the app for homework. Most participants (n=18) felt that doing the practice lessons on the app helped them to improve their reading or reading comprehension skills, and seventeen participants reported they liked using the mobile app because it allowed them to practice and learn anywhere/anytime using their cell phone. A majority of students indicated they would welcome additional homework assignments on an app similar to the one used this semester.

Instructors Moderate the Learning Experience. Instructors acted as advocates for their students during the intervention process. For instance, when distributing pretest score reports to students, both instructors thought of ways to mitigate potential negative self-perceptions due to low scores on the assessment. One instructor indicated she buffered students by saying "Don't take this personally, but have a goal in mind that…this is where you'd like to be at the end of semester." Similarly, the instructors cautioned the research team that setting an expectation that the assessment would take 2 or 2.5 hours rather than 1.5 hours would allow students to prepare themselves better mentally and also prevent discouragement. One instructor noted, "Some might have felt discouraged about their abilities since we told them 1.5 hours and it was taking them longer." The instructors also performed in a motivational function, for instance, motivating students to perform their best on the pretest by telling them their performance on the pretest would determine the kinds/types of activities they were given the rest of the semester on the mobile app.

Equity Considerations and Room for Improvement. Program administrators reported major differences in students' eagerness and interest to participate in the focus groups by class, with the GED/Adult Education students more motivated and eager to share their experiences, and the Developmental Education class less motivated and more reluctant to talk. This same theme of more motivation from the GED/Adult Education students to work on the app and less motivation from the Developmental Education students was also observed by the instructors and research team throughout the implementation of the program. The administrators elaborated on several differences between the two groups of students including age difference with half of the students from the GED/Adult Education being over age 30 which might account for their comfort in

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speaking up in the focus groups. The administrators also shared that the GED/Adult Education program is grant-funded and as such there is flexibility to give these students a tremendous amount of support and structure including more advising hours, more communication with students, a structured attendance policy, and more professional development experiences. However, the administrators also noted that the two groups were similar in other ways, including "race, SES, dispositional barriers (self-efficacy, motivation, consistency, perseverance, self-awareness, attention span), life challenges, learning challenges."

Implementation Lessons Across Programs

Overall, these Case Studies demonstrated a positive experience for students who persisted in these technology enhanced, blended-learning experiences. Case Study 1 behavioral skills training was well received by the instructor, students, and administrator as a non-credit bearing course at the community college. The two areas that resonated across the three stakeholders was the usefulness of the program towards (a) increasing work readiness skills and (b) strengthening the confidence of students in employing those behavioral competencies. With the possibility of scaling up the implementation of soft skills training across multiple classes and institutions, there are some implications that merit consideration. In this case study, the administrator specifically selected the instructor, because his interests and skill sets aligned with the overall objective the program. However, in scaling up soft skill training, programs may be introduced to instructors as required top-down initiatives. Therefore, developing avenues to collaborate with or incentivize instructors may build stronger instructor buy-in.

Case Study 2 aimed to pilot an essential cognitive skills assessment plus app solution intended to improve essential literacy skills via immediate feedback, in two community college classrooms with career technical and adult learners. Some of the most basic and important findings from this study are that across both classes, a majority of learners looked forward to seeing the results of their initial assessment, found the score report encouraging, and in at least one class, were looking forward to using the app, asking about it multiple times. Learners generally enjoyed using their mobile devices and apps as part of their course assignments.

Limitations to this study include the absence of post-course data for students who dropped the course, a common challenge in educational training program evaluation that may have been compounded by the absence of incentives (both the voluntary nature of the program, and a lack of participant incentives for the study). Future studies are planned to shift these programs into existing required curriculum in both credit and non-credit programs and add participant incentives to increase research participation, even among non-completers.

Even with only sparse data, in comparing the cases, notable lessons about implementation included the role of student buy-in in implementation success, the role of third party support in the implementation process. The authors discuss each in turn.

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Student Buy-in and Implementation Success

In both Case Study 1 and 2, the general student enthusiasm for content and delivery were encouraging, as learner motivations can predict initial skill acquisition (Bauer et. al, 2016). While both programs were well-received by the participants who completed them, recruitment and retention were major challenges for Case Study 1, the voluntary program, while Case Study 2 was much more successful. Key differences between the programs that likely contributed to this challenge included the voluntary nature of the program and the tuition free model, which meant that students did not have any financial stake in the program. In Case Study 1, voluntary participation may be related to student attrition and low student participation, due to the low accountability of students to attend or complete the sessions. This was a source of frustration for the instructor and implementation team. In order to maintain high fidelity of implementation and sustain student participation in a scalable model, attaching the program to a pre-existing course as required homework may be a more viable option.

Incorporating an essential skills curriculum into an extant credit-bearing course, as was done with Case Study 2, can ensure that all learners experience the curriculum and will be motivated to complete the training activities. Integration provides opportunities for learning and practicing the behavioral competencies in the context of technical content related to the learner's career aspirations. As demonstrated by Knowles (1984), placing essential skills instruction into context is best practice for designing adult learning environments that stress the criticality of the immediate pertinence of the topics for the learner and their career.

Further, incorporation of essential skills curriculum into courses promotes a situated learning environment particularly effective for adult learners (Brown, Collins, & Duguid, 1989). Learners bring their prior knowledge and experiences into the learning setting and construct new knowledge by working with their peers, their instructor, and the instructional materials and activities.

By integrating essential skills training as a homework task, as in Case Study 2, all stakeholders appear to have a more seamless experience. Instructors are not burdened with the loss of instructional time or with the need to reframe the scope of their predesigned course. Students may feel more incentivized to complete the entire program as opposed to only partially completing the tasks and Knowledge Check assessments. Students do not have to allocate additional time to attend a separate course, but instead the additional training is infused within their scheduled coursework.

In working with field partners, the research team observed that, independent of the context and content of an actual course, learners were not likely to appreciate the importance of behavioral competencies. Thus, they might be disinclined to enroll in a standalone development course on behavioral competencies, particularly if completing the course does not earn the student additional credits towards their certificate. Integration provides opportunities for learning and

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practicing the behavioral competencies in the context of technical content related to the learners' career aspirations. This allows the instructors and learners to relate the online content to content and issues, both career-related and technical, covered in coursework, allowing learners to reflect on how the skills apply both in the classroom as well as within their chosen careers.

Furthermore, facilitating implementation factors may include whether the class is for credit and for a grade, or is non-credit bearing with only pass/fail options. Unless completing the homework and actively participating is tied to whether a student passes or fails, students may be able to skip homework and class sessions and still pass the class. On the other hand, students with below-average but not very low reading abilities, in a class where the homework/program is required for a grade, and with an instructor whose attitude reflects that they believe the program is do-able by their students, might have better outcomes with respect to student motivation and interest in the program.

Third-party Engagement and Scalability

In considering long-term scalability and sustainability for these programs, it is important to acknowledge the role that third party engagement played. This factor was cited by instructors and administrators in both programs as a facilitator for program success. Factors that made these partnerships work included the transparency of ETS's expectations and goals, frequent communication, joint planning, and a commitment to feedback-formative evaluation-improvement.

Members of the ETS team worked closely with administrators in the planning phase to determine implementation design and recruitment. ETS project managers offered support and troubleshooting as needed for program technology and implementation, and worked closely with instructors throughout the launch and implementation of the trainings.

Community colleges enter into partnerships with local organizations to expand their impact, connect to employers, and/or bring additional resources into their programs (e.g. Haynes et al., 2018, . Typically, this is done through contract trainings, technology centers, workforce development partnerships, welfare-to-work, or business-based scholarships (Kisker and Carducci, 2003). In this study partnership the pairing is somewhat different, as the college's partner is the research arm of a non-profit and non-governmental entity. However, this introduced resources to the school that removed costs typically associated with introducing novel curricula/pedagogy, which was a factor in the success of the programs. The resource intensity of this model threatens scalability; future studies are planned to determine if the programs would succeed without the same level of third party resources and expertise, and what adjustments can be made to ensure long-term program successes.

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Conclusion

Though small in scale, the two case studies demonstrated student enthusiasm for novel, technologically-supported forms of essential skills training, as students in both programs reported general satisfaction with the trainings and increased confidence in their abilities. However, the form of implementation mattered; in particular, integration of the curriculum into an existing, mandatory course, as opposed to a stand-alone, voluntary, or non-credit bearing course, increased motivation for all students to engage in the curriculum and increased efficacy through providing opportunities to learn and practice in context. A strong working relationship between partners appeared to facilitate program success, and frequent communications and joint planning go a long way to ensure that relationship.

Given the small sample of students and high incidence of dropout in Case Study 1, it is imperative that research continue to fortify our understanding of these novel programs; further action research is needed to understand the impact of mobile learning modality relative to classroom and homework-based instruction and how to embed co-curricular activities that promote essential skill work readiness benchmarks in existing CTE curriculum. The results of these case studies suggest best practices to inform these efforts and provide necessary structure to support student success in essential skills development. These promising results warrant further study on a larger scale.

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Original Research

Integrating International Exchange Students into Local Service-Learning Projects in Hong Kong

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Abstract

Through qualitative research, which involved qualitative interviews and focus group meetings with members of four student teams, we identified a number of barriers to the development of cohesiveness in teams of local and international exchange (IE) students, who were undertaking service-learning (SL) together. Lack of cohesiveness in such teams resulted in the psychological withdrawal of some of the IE students and appeared to reduce opportunities to derive developmental benefits. Barriers to cohesiveness identified by the students included language, conflicting priorities, and East-West cultural differences. We also identified how students took action to remove the barriers to cohesiveness. These actions included conducting internal team meetings in English and arranging for local students to provide interpretation in meetings with community stakeholders. Students reported that the major developmental benefits associated specifically with working cohesively in a cross-cultural team were improved English language skills, greater interpersonal adaptability, and appreciation of diversity. We offer practical suggestions about how educators can prepare local and IE students to work together effectively on SL projects and about further research. Studies of projects undertaken by inter-cultural SL teams at host universities in other jurisdictions would facilitate the generalizability of the findings.

Keywords: cohesiveness, cultural differences, communication strategies, developmental outcomes

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Introduction

It has become a mainstream educational practice in tertiary education to arrange for students to undertake projects that involve applying academic knowledge to real-life situations beyond the classroom through experiential learning (DiCecco et al., 2004; Gilbert et al., 2014). Such outside-the-classroom learning platforms include service-learning (SL), internships, and work-integrated learning, which typically aim to develop students' practical and transferable skills (Brail, 2016), along with international exchange (IE) programs, which seek to equip students for globalization (Chak & Makino, 2010; Gallarza et al., 2017). Both IE and SL programs have been identified as experiential learning platforms with high developmental impact. Niehaus and Crain (2013) observe that the prevalence of SL opportunities and IE experiences has increased, and that programs combining the two are no longer unusual. In this paper, we shall investigate students' experience of SL projects that were undertaken by mixed teams of local and IE students.

SL requires students to put academic knowledge into practice, along with contributing to community development through collaboration with one or more community service agencies. Conway et al. (2009) recommend that educators increase their use of SL, and this view is supported by Yorio and Ye (2012), who found that SL has a positive effect both on students' understanding of social issues and on their cognitive development. SL has also been found to give rise to a host of other positive developmental outcomes, including greater sensitivity, relationship and team skills, and self-awareness (Conner & Erickson, 2017; Lau & Snell, 2021; Snell & Lau, 2020; Wilson, 2011).

Globalization has enabled a large number of students to leave their home countries to pursue higher education and has had a profound impact on higher education (Chelliah et al., 2018). Chak and Makino (2010) regard IE programs as involving out-of-classroom experiential learning activities. During IE placements, students can develop communication skills experientially, through interpersonal contact with different yet similarly situated others, and such contact can have deep personal impact (San Antonio & Ofori-Dwumfuo, 2015). Engaging in SL in collaboration with local students might therefore appear to have potential to induce additional developmental impact for IE students.

However, the quality of the team experience when undertaking SL projects, reflecting team cohesiveness, has a major impact on student development (Falk, 2012; Snell et al., 2015), but in cross-cultural contexts this may vary considerably, such that undertaking SL may not always be an effective platform for the development of IE students and their local counterparts. Prior studies have focused on the role of leadership, culture, structure, and goal clarity in enhancing team cohesiveness (Riordan & Weatherly, 1999; Wendt et al., 2009), but relatively little is known about how students' behavior can facilitate or impede the development of cohesiveness in cross-cultural contexts.

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The research for this paper is motivated by the view that educators bear some responsibility for fostering cohesiveness within student teams (Williams et al., 2006). It is based on interviews with local and IE students, who worked in four culturally mixed SL project teams based at a university in Hong Kong. We shall draw on intergroup contact theory (Allport, 1954; Ryan, 2016) as a framework for analyzing cross-cultural interactions in the context of SL. The paper addresses three research questions. First, what are the potential barriers to integrating IE students into SL project teams with local members? Second, what are the processes that facilitate the development of inter-cultural cohesiveness within the teams? Third, what are the potential benefits arising from inter-cultural team cohesiveness in the context of SL? Based on the findings, we shall identify theoretical contributions and suggest practical steps for developing cohesiveness among culturally mixed teams in the context of SL.

Literature Review

Team Cohesiveness and Its Importance in SL

Team cohesiveness is experienced as solidarity, harmony, energy, and mutual commitment among members (Müceldili & Erdil, 2015; Quinn & Dutton, 2005). It is reflected in members' mutual attraction (Williams et al., 2006) and in their desire to remain on the team (Campion et al., 1993). It may be defined as the extent to which a team works in unity toward a common goal while also meeting the emotional needs of the members (Carron & Brawley, 2000). Team cohesiveness may thus be construed as comprising the two dimensions of task cohesiveness and social cohesiveness, which converge when team members form attachment in order to achieve objectives (Ötkan et al., 2017). Cohesive student teams have strong potential to induce positive developmental outcomes (Williams et al., 2006). We consider that team cohesiveness is an important success factor in SL, which unlike other kinds of team assignment requires members to meet frequently and do relatively more of the project work together, and relatively less of it individually as delegated parts. A quote at the beginning of the findings section will illustrate this point. In the context of SL, the nature of both within-team interactions and interactions between student teams and community stakeholders are important processes that govern whether team cohesiveness is achieved.

Potential Barriers to Cohesiveness

Various cross-cultural and other contextual barriers can impede the development of effective team relationships between IE students and local students (Barna, 1997; Jang & Kim, 2010; Sato & Hodge, 2013; Yakuina et al., 2013). We shall identify four domains where barriers may arise.

Cultural Preferences. Differences in cultural values and failure to appreciate such differences, may impede IE students' ability to establish relationships with local students (Barna, 1997; Wen et al., 2018). Studies by Hofstede (2001, 2005) have indicated that the majority of cultures

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characterized as Western, such as those in the United States, Western Europe, New Zealand, and Australia, tend toward individualism, whereas most cultures in East Asia, Africa, and Latin America tend toward collectivism. In Hong Kong, collectivism prevails as a cultural norm (Triandis et al.,1988), while many IE students come from Western cultures. LeFebvre and Franke (2013) characterize the core elements of individualism as independence and uniqueness, versus those of collectivism as duty and in-group orientation. Individualists tend to focus more on individual responsibility, assertiveness, and competitiveness, whereas collectivists are more inclined to seek advice from others, engage in relationship-building, strive to maintain harmony within the group, and respond to group pressure (LeFebvre & Franke, 2013). Individualists tend to value pleasure, achievement, competition, and autonomy, while collectivists prefer to emphasize security and obedience, and selectively strive to maintain cohesion within those groups with which they identify (Nibler & Harris, 2003). Failure to appreciate differences in cultural value preferences may constitute a barrier to the development of cohesiveness within internationally diverse student teams.

Language Barriers. Language barriers constitute another potential barrier to the development of cohesiveness in cross-cultural student teams (Barna, 1997; Keles, 2013; Wen et al., 2018). Lack of proficiency among group members in a common language medium is generally acknowledged to impede the development of team involvement and group trust (Lagerstrom & Andersson, 2003; Lauring & Selmer, 2010), but appropriate communication strategies may overcome this barrier.

Contact Relationships. Empirical studies have demonstrated a tendency for IE students to socialize and develop friendships with one another rather than with local students (Brooks et al., 2015; Fincher & Shaw, 2009; Tian, 2019; Waters & Brooks, 2011). Ryan (2016, p.16) infers from the research of Ladegaard (2015) that the mere presence of different cultural groups of students on campuses does not naturally lead to positive intercultural interactions with local students but rather that a positive context for such interactions needs to be created by university administrators and instructors. Tian (2019) notes that although support by university authorities through policies, regulations, and organizational arrangements to increase the diversity and interaction among students can help to foster cross-cultural friendships, segregation can prevail. In addition, prejudice, stereotyping, and ethnocentricity may impede the development of positive contact relationships within groups characterized by diversity (Barna, 1997; Hodson & Dhont, 2015; Keles, 2013). According to intergroup contact theory, while favorable contact leads to cooperation and reduced prejudice, unfavorable contact results in increased tension and hostility (Tian, 2019). Allport (1954) stipulated four conditions that are needed to be met in order for prejudice to be reduced under increased contact between members of different (cultural) groups: (1) authority support, (2) equal status of the groups in the situation, (3) intergroup cooperation (i.e. working together in a team), and (4) common goals. In the context of SL, the likelihood of favorable contact and cooperation is increased by the adoption of high-quality instructional

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methods, and by strong, supportive relationships with site-supervisors or partner organization representatives (PORs) (Batchelder & Root, 1994; Conner & Erickson, 2017) and potentially, if appropriate actions are taken within cross-cultural teams. Intergroup contact potentially increases empathy if members are willing and are able to assume the perspective of the outgroup (Pettigrew, 2008).

Personality Factors. When going overseas for study and entering the host environment, IE students are sojourners who may experience culture shock (McKinlay et al, 1996), struggling to adapt to the strange people, tasks, and situations of an unfamiliar culture (Kim, 2001; Pitts, 2009). In addition to suffering culture shock, an individual IE student may have personality characteristics such as shyness that are relatively socially unattractive to other members, and as a result may experience reduced access to communication within the team, and may even come to be excluded from team discussions (Jehn et al., 1999; Lauring & Selmer, 2010). This phenomenon, besides adversely affecting the marginalized member, may also be a source of discomfort and inconvenience to the other members.

Methodology

Background

The host university had launched an IE program in the early 2000s. A core component of the program was that undergraduates could choose to undertake studies for one semester at a partner university overseas, while on a reciprocal basis, partner universities arranged for their own degree-seeking students to study at the host university for one semester. By the time of data collection for the current study, the IE program had become popular among local students, such that more than half of them chose to join the program at some point in their studies, while during a given semester there were similar numbers of outgoing and incoming IE students. The host university had begun offering semester long credit-bearing SL courses for undergraduates in the mid 2000s, and like the IE program, this had also become popular among local students, the majority of whom were taking at least one credit-bearing SL course before graduation. As with all undergraduate courses at the host university, the SL courses were open to attendance by incoming IE students, so long as the latter met the stipulated academic prerequisites, if there were any.

The current research focuses on students' experiences on two SL courses, Social Marketing and Leadership and Teamwork. The aim of the Social Marketing course was to equip students with concepts, tools, and strategies of marketing to address selected social issues, while fostering in them a sense of self-responsibility and a desire to care for those around them. Each student was required to attend lectures and participate in class discussions, and to conduct an individual project as well as participate in a team-based SL project. The aim of the Leadership and

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Teamwork course was to enable students to learn the skills of communicating effectively in teams, of assuming leadership roles in team activities, and of building effective teams. Besides attending lectures and participating in class discussions, debates, games, and experiential exercises, each student was required to participate in a team-based SL project and to write a case study essay based on material distributed by the instructor.

Both courses tended to attract significant numbers of IE students, possibly because there were no academic prerequisites for them. The respective instructors, both of whom had prior experience of teaching their respective courses, arranged for some of the project teams to be composed of a mixture of local and IE students. As was standard practice at the host university, the various service-learning projects on both courses were arranged by the university's office of service-learning (OSL) in cooperation with representatives from the respective community organizations, i.e., PORs. The following standard practices were also adopted. On both courses, at the beginning of the semester students received briefings in class by a staff member of the OSL and a teaching assistant (a student with prior experience of undertaking SL) about the nature, purposes, and developmental goals of SL, and about the various administrative procedures required for registering for the SL component of the course requirements and for receiving official recognition for completing this component. The PORs also visited the class to provide background information about the mission and activities of their respective organizations, and the nature and aims of the projects. In addition, the OSL arranged a special training workshop lasting three hours with breakout sessions to introduce students to the special needs of different groups of direct service recipients and to prepare students for contact with them. For the students on the Social Marketing course, this workshop also introduced students to various teamwork skills. However, special training on working in cross-cultural teams was not provided to students on either course. Each project team had two or three meetings with their POR during the semester to discuss their plans and review their progress.

Data Collection

Our research was inductive and qualitative (Creswell, 1998). Data were collected by the first author and a project assistant at the host university at the end of the fall semester of academic year 2013-14. Depending on their availability, students volunteering to participate in the research participated in either a focus group (Greenbaum, 1998) or in a semi-structured individual interview (Kvale, 1996). Each of these events lasted around 1 hour and 30 minutes, and followed a critical incident protocol (Bitner et al., 1990), which encouraged storytelling (Boje, 2001). The focus groups comprised either local students or IE students. The interviews and focus groups were conducted in Cantonese with the local students, and in English with the IE students. Topics comprised: (a) how students came to understand the service needs of service recipients/host organizations, (b) the challenges and learning experiences associated with team diversity during the project, (c) interpersonal relationship development during the project, (d) developmental outcomes specifically associated with cross-cultural team working, and (e) ideas for the

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improvement of SL project preparation and support arrangements for teams comprising both IE and local students.

Informants and Their Teams. A total of 9 local students (3 males, 6 females) and 7 IE students (4 males, 3 females) were interviewed. They participated in four teams conducting SL projects, with each team comprising a mixture of local and IE students. Table 1 lists the informants, along with the respective home country of each of the IE students, all of whom came from the West.

Table 1. **List of informants from the four SL project teams**

Teams	Local students	IE students (and country)
Team 1	M18L M19L	M20E, France M21E, Sweden
Team 2	F24L F25L	M22E, Germany M23E, Germany
Team 3	F2L F3L	F1E, USA F4E, Portugal
Team 4	M10L F11L F12L	F9E, France

Codename composition: F = female; M = male; L = local; E = IE.

Team 1 comprised four local and three IE students, who had studied the Leadership and Teamwork course. Four male members of this team, among whom two were local students and two were IE students, participated in the research. The participating IE students were from France and Sweden respectively. Team 1 had served an organic farm, managed by a small team of social workers and staffed by recovering psychiatric patients, who were working as ecotour guides for members of the public. The SL project had required Team 1 to design a set of social games that could be operated by the ecotour guides as part of the program for visitors to the farm. Team 1 had also organized a training workshop for the ecotour guides to learn how to operate the games.

Team 2 comprised four local and two IE students, who had studied the Leadership and Teamwork course. Two female local students, along with the two IE students, both German males, participated in the research. Team 2 had served a group of elderly people by providing training workshops for them. The aim of the workshops was to enhance the leadership and teamwork skills of the elderly people and thereby improving the quality of the committee work that the latter were undertaking for a community-based education institute.

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Team 3 comprised five local students and two IE students, who had studied the Social Marketing course. Two female local students and the two IE students, also female, who were from the USA and Portugal respectively, participated in the research. Team 3 had served groups of primary school students by running two anti-crime promotion workshops, featuring Kung Fu dance and a drama, on behalf of the Community Relations Department of the local police force. Members of Team 3 had been taught the dance by some elderly people, who had also supported Team 3 in the delivery of the workshops.

Team 4 comprised six local students and one female IE student, who had studied the Social Marketing course. One male local student, two female local students, and the one IE student, who came from France, participated in the research. On behalf of the Hong Kong government's Social Welfare Department, Team 4 had promoted volunteerism to students at a secondary school by means of a video, posters, leaflets, and booths. They had been supported in this endeavor by a selected group of senior secondary students.

Procedures for Data Analysis

The interviews and focus groups were recorded and then transcribed in English by the first author. We then adopted a form of thematic analysis (Terry et el., 2017), which was experientially oriented, focusing on the thoughts, feelings, and reported actions of the students. Our basic approach to coding and theme development was qualitative and flexible (Braun & Clarke, 2006), working bottom-up from the data rather than emphasizing coding reliability. Initial codes were developed by the first author. In addition to a theme regarding the relative presence or absence of cross-cultural cohesiveness, three themes corresponding to what emerged as the three research questions were eventually established after revisiting the data and codes several times during extensive discussions and reviews with the second author until consensus was reached. The first theme comprised perceived barriers to the development of cross-cultural cohesiveness. The second included the processes that contributed to the development of cross-cultural cohesiveness. The third comprised the perceived beneficial outcomes for students specifically associated with cross-cultural cohesiveness. We analyzed the different perspectives of local and IE students concerning these themes.

Findings

One of the students interviewed in the research pointed out the importance of cohesive teamwork in the context of service-learning:

> [Doing SL] is different from taking a course which requires [traditional] team assignments. For team assignments, we can just divide up an assignment into different parts, and with appropriate allocation of assignment parts to each member, we can then do the parts on our

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> own. But for an SL project, we really need to come together to have discussions and to express our opinions. [F24L, Team 2].

It appeared that as the semester progressed, a sense of cohesiveness among IE and local students developed in Teams 2 and 3, and to some extent also in Team 1. One positive indication was that many local and IE students mentioned that they intended to meet one another in the future outside Hong Kong. Other indications of cohesiveness included the following:

> We had a lot of fun. They [local students] really opened up … I think we are good friends now. They really appreciate the time they had with us. [M23E, Germany, Team 2].

> Our team fitted very well together as our personalities were complementary with each other. Some were quieter, and some were more outgoing. Each of us had the chance to express our ideas … I am very lucky that we got an awesome team. [F1E, USA, Team 3].

> The two [IE] students were willing to share ideas … We all contributed to the development of this project. The feeling was good … Every member would contribute. [F3L, Team 3].

> The people from this team were open and they were not shy but would speak and laugh with us, ask us questions, trying to make conversation. Between us there were not a lot of differences. [F4E, Portugal, Team 3].

In Team 4, however, cross-cultural cohesiveness was not achieved as the IE student failed to engage in most parts of the SL project.

> I felt that I didn't participate a lot in the project, I couldn't get involved as much as them [local students]. They were giving me almost nothing to do. It wasn't a good thing. You should give equal work to everyone involved ... I said give me more, I can do it, but no … I regret that I didn't work a lot with the local students, a bit sad. [F9E, France, Team 4].

Perceived Barriers to Cross-cultural Cohesiveness

While Team 4 was the only one that had failed to achieve cross-cultural cohesiveness, students in all four teams identified barriers to cohesiveness. These comprised (1) competing priorities, (2) cultural differences, (3) lack of socialization for the IE students into common practices at the host university, (4) concern among local students that they bore an extra burden and (5) language barriers. These perceived barriers are explained and illustrated below.

Competing Priorities. Some local students perceived that, compared with themselves, the IE students emphasized extra-curricular concerns and had assigned a relatively lower priority to their SL projects. There were two associated differences in the circumstances of local students and IE students. First, grades had a material impact on the grade point average (GPA) scores of the local students but not for the IE students. Second, local students perceived that the IE

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students regarded a semester-long sojourn in Hong Kong as an opportunity for socializing and touring. For example:

> Local students would finish their projects first before they would arrange social life. The [IE] students would insist on having social life every night. They had many more social activities than us ... Friday nights are party time for them, and they are not willing to have meetings then. We locals always have meetings for project discussion from 2 pm to 8 pm during weekends. But the [IE] students insisted not to come. [M19L, Team 1].

Comments by the IE students did not contradict such perceptions, and suggested that because of their different priorities, the IE students were relatively less readily available to join meetings of their respective project teams. For example:

> It is my first time coming to Hong Kong. In Hong Kong, it is convenient for me to travel to other Asian countries, e.g. China, and it is my first time in Asia. [F9E, France, Team 4].

Cultural Differences. Local students perceived that cultural differences vis-à-vis IE students along the individualism-collectivism dimension, compounded by competing priorities in scheduling their team meetings, had posed a challenge to developing team cohesiveness. For example:

> Among mainland [China] and local students, if three out of the five members agree to something, due to the team pressure, the remaining two members will accept the opinions … Foreign people are different. The [IE] students will insist on their own views. For example, even if four members (locals) agree to have meetings during Saturdays, one of the IE students is not willing to make a change. [M19L, Team 1].

Lack of Socialization into Common Practices at the Host University. Some students identified instances where IE students found practices commonly adopted at the host university unacceptable. For example, one local student appeared to have been taken aback by the negative reactions of two German students in her team regarding the use of drawings as a means of representing ideas and reflections:

> During the class, the [IE] students did not like drawing on large flip chart paper to represent our progress to the whole class. These two German students thought that this was a childish activity. We [local students] found that it was a convenient way to bring out our ideas. They [the IE students] thought that as university students we should just use words. [F24L, Team 2].

Another difference concerned IE students' insistence on holding meetings during standard working day hours as opposed to local students' common habit of working long into the night.

> The local students stay up late a lot doing their homework. I don't know whether they are procrastinating, or whether they do not want to do their work during the day. During my

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> project work with the students here, some looked tired and they mentioned doing project work until 4 am. In my home country, I went to sleep at around 10 pm. We think that it is not worth being tired tomorrow. We do more work during the day. I usually had my part done early and I urged them [local students] to have earlier meetings. I could do my part early, but they could only do their parts at the last minute and had their own stress. [F1E, USA, Team 3].

Concern among Local Students about Bearing an Extra Burden. Comments indicated that there was some reluctance among local students to work with IE students students because of the assumed extra effort entailed by the presence of the latter.

> It may be that they [locals] are more relaxed when they work with other locals. But with us [IE students], not everyone speaks English easily and they [locals] have to try even harder. [M21E, Sweden, Team 1].

> When forming teams, we [local students] wanted only local students as teammates. This was because our service targets were local school students and we assumed that the [IE] students would not be familiar with the local culture and would make things more difficult for the team. [F3L, Team 3].

> When I discovered that she [an IE student] came from France ... I assumed that she would act in a more relaxed, slow manner … They may be lazier at work … so I was a bit worried at the beginning. [F11L, Team 4].

Language Barriers. IE students emphasized that there were language barriers to their own integration into their respective teams, reflecting their inability to communicate in Cantonese. Ironically, some IE students reported that they had chosen Hong Kong as the place for their exchange because they had assumed that English is widely spoken in Hong Kong. For example:

> I had chosen to come to Hong Kong because I thought people here speak English like they do in Singapore. [M20E, France, Team 1].

> Our home university told us that everyone speaks English here in Hong Kong. [F1E, USA, Team 3].

Some IE students found it unfortunate that they had targeted an English medium host university for their exchange program but had discovered that local students were reluctant to speak English and that many people from the wider community could not speak English. Their comments included the following:

> Not many people speak English here, for example none of the security guards speaks English. I wish my home university could have taught us Cantonese before we came here. [F1E, USA, Team 3].

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The language barrier was especially salient in the context of those SL projects, which required collaboration with locally based external stakeholders who did not speak English. For example:

> I don't speak Cantonese and when I met with the police, I found that one of the officers did not speak English very well. When my teammates were discussing statistics [in Cantonese], I just sat there. And the elderly [service recipients] didn't speak English very well. That was hard. [F1E, Team 3, USA].

> The [POR] spoke to us in Cantonese, and after this orientation meeting, which overran, one IE student asked not to get involved the next time. This member did not show up at the next meeting. The other two IE students joined three out of the six meetings. [M19L, Team 1].

A local student mentioned that older members of the local community overwhelmingly preferred to communicate in Cantonese rather than in English:

> Only two or three elderly people could understand simple English. Most did not understand English. Our communication language was mainly Cantonese. Therefore, the two exchange students did not understand what we were talking about, including the feedback from the elderly people. [F24L, Team 2].

Although English is the formal medium of instruction at the host university, several informants reported that their local team members initially failed to respond to the IE students' need for them to speak in English and preferred either to continue speaking in Cantonese or to curtail their own contributions. For example:

> If several times I hadn't expressed myself well [in English], I preferred to keep silent. At several meetings, I was relatively quiet and would only talk when called upon. I would not initiate to express my opinions actively. [M19L, Team 1].

> I dislike talking in English and have a fear of speaking English. We [locals] were worried about conversing [with the IE students]. [F24L, Team 2].

> All meetings were in Cantonese and I did not understand the reason why they could not do it in English … From the beginning, most important ideas and decisions were taken in Cantonese. [F9E, France, Team 4].

Some local students mentioned that it was difficult for them to understand the spoken English of the IE students from non-Anglo countries because of their distinctive accents. For example:

> We discovered that we had very different accents. At first, we could not understand the spoken English between us. Therefore, communication became a serious issue. [M19L, Team 1].

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Overcoming the Barriers

Local students adopted various methods for overcoming interpersonal barriers vis-à-vis the IE students. These included (a) appreciating the strengths of the IE students, (b) holding pre-meetings, (c) reaching out to IE students and inviting them to engage, (d) conducting team meetings entirely in English, (e) finding non-verbal roles for the IE students during episodes of direct service, and (f) providing simultaneous interpretation during direct service. IE students contributed to the development of cohesiveness by (a) exercising forbearance and good humor, (b) joining in using electronic media, and (c) compromising when scheduling meetings. These various approaches are illustrated below.

Appreciating the Strengths of IE Students. We list two comments, one indicating appreciation for IE students' perceived creativity, the other appreciating their perceived proactivity and citizenship behavior:

> If the instructor assigns us a topic to work on, we Chinese will focus narrowly on that topic, while IE students will go beyond the frame. If asked for any new methods, Chinese will stick with obvious solutions, whereas IE students will think of new methods. [M19L, Team 1].

> They [IE students] took initiative to express their views about what actions they would take, and they would not wait for us to assign tasks to them. They were nice when we communicated. They were responsible and punctual. They came on time for meetings; we didn't need to urge and remind them. They would respect the deadlines. We were very lucky. [F25L, Team 2].

Holding Pre-meetings. Local students in one team initially sought to overcome the language barrier by holding separate meetings with local students prior to meetings of the whole team:

> We local students had our own sub-group meeting first before we talked to the [IE] students. There were more things to do when we worked with them. Sometimes, we needed to explain several times before they could understand. [L25, Team 2].

Reaching Out to IE Students and Inviting Them to Engage. A local student explained that she and the other local students in her team realized that unless they deliberately drew the IE students into team discussions, the latter would continue to engage in withdrawal behavior:

> We needed to initiate to speak to them [the IE students] to encourage them to work with us. We understood that in a strange and new environment, the [IE] students will tend to gather together. If we had not taken the initiative, it would have been more difficult to cooperate together in our project work. [F2L, Team 3].

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Conducting Team Meetings Entirely in English. In three teams (Teams 1-3), those local students, who were initially reluctant to communicate in English during team meetings, eventually joined their peers in doing so. Illustrative comments were:

> I suggested to team members that it would be better for everyone to use English to communicate as we were an international team … In the beginning, the female members did not want to speak in English. I encouraged them to speak more. [Eventually]… they improved and became more willing to speak more in English. [M18L, Team 1].

> When we lapsed into using Chinese again sometimes, [M18L] would remind us not to do so. Another two local female members and I would sometimes forget to write in English. With prompt reminders by [M18L], we would rewrite again promptly in English. [M19L, Team 1].

> At first, one of the team members spoke some Chinese. We reminded this person to speak more English and eventually we were all speaking English. [F2L, Team 3].

Finding Non-Verbal Roles for The IE Students during Direct Service. A local student explained:

> [During the service delivery], the IE students did not need to speak but they could mime the actions to be taken and they were willing to take up this role. [M18L, Team 1].

Providing Simultaneous Interpretation During Direct Service. In at least one team, local students provided simultaneous interpretation during meetings with service recipients:

> We do not speak Cantonese and we had to make our presentation [to elderly people] in English. The female local students had to serve as interpreters. We made PowerPoint presentation slides in English for the elderly and the female students translated them into Chinese. [M23E, Germany, Team 2].

> The service was not hard for us to deliver, and the elderly people were really nice. We had conversations with them. [M22E, Germany, Team 2].

> We [local students] found that we could perform a translation role effectively between the IE students and the elderly people. We were able to translate clearly as those, who did not understand English could follow us. The elderly people were excited to meet the [IE] students. They said, 'Oh! Foreign people! Very handsome!' … Those, who could speak English went to speak to them [IE students] in English during the break for a long time and we did not need to translate for them. We even took a video of their conversations. They talked very happily. During the last two workshops, the handouts were bi-lingual. [F24L, Team 2].

Forbearance and Good Humor. Some IE students were described as having contributed to the building of cohesiveness by being sensitive to local students' difficulties with spoken English

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and being patient and good-humored in trying to ensure that everyone could understand them and feel at ease with them. For example:

> With local students, I speak more carefully. Otherwise you can say something that can offend someone because they misunderstand something you say and something like that. [M20E, France, Team 1].

> In Sweden, I would be more aggressive as you can communicate easier. But here, I try to be more collaborative and be more open. It is a different culture, and everything is different. When you ask locals "What do you think?" they don't like to respond so much. Maybe they don't know or maybe they don't want to share their ideas. You really have to persuade them really much to get some answers. [M21E, Sweden, Team 1].

> We would make some jokes, so the whole atmosphere was good. Casual and fearless and so on. We showed the local students that we are normal people and don't harm anyone …We tried to show our best side. [M23E, Germany, Team 2].

> The two exchange students were funny and nice. We gradually came to talk to each other on topics not associated with the project. We would make friendly jokes and also played together. The atmosphere was harmonious. [F24L, Team 2].

> Eventually we found that they [IE students] were nice. We [local students] started to talk more with them and established better relationships. With better relationships, we talked even more. [F25L, Team 2].

> They [IE students] also worked hard to cooperate with us …We also chatted sometimes about the places that they had visited. They shared photos and we had leisure time together and so the feeling towards them changed. [F3L, Team 3].

> I tried to slow down the conversation and saw whether they [local students] understood or not. If they didn't, I tried to explain with simpler words, or asked others to help. [F4E, Portugal, Team 3].

Joining in Using Electronic Media. One IE student mentioned the following:

> We could communicate in English through Facebook and WhatsApp. Communication was quite good. [M20E, France, Team, 1].

Compromising on the Scheduling of Meetings. A typical comment was:

> The IE students came to accept having meetings after 8:00 p.m. during the week. This was already their maximum adjustment …But they still could not accept having project meetings during weekends. We gave way to them about that. [M19L, Team 1].

Developmental Outcomes Associated with Cross-Cultural Cohesiveness

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In the three teams where the students had recognized the importance of overcoming barriers to cohesiveness and had apparently overcome them or had made progress in overcoming them, the main developmental outcomes associated with cross-cultural team experience that they reported were improved English, interpersonal adaptability, and appreciation of diversity.

Improved English. Local and IE students (from non-Anglo countries) alike reported that their English had improved. For example:

> Now, after more practice in using English to speak to them [IE students], my confidence has increased. In the past, when making presentations, I needed to read out the script. However, during my presentation yesterday, I did not use a script. This is the biggest improvement for me during this semester. [M19L, Team 1].

> I rarely speak English with anyone in my home country, and so here I have been able to improve my English. I speak English more fluently now than before. [M21E, Sweden, Team 1].

> Yes. I have improved my language. Since I often talked with the exchange students, my English has improved a lot. [F24L, Team 2].

> I improved my English a lot here also. [F4E, Portugal, Team 3].

Interpersonal Adaptability and Appreciation of Diversity. In Teams 1, 2, and 3, once the IE students had developed a more complete understanding of the service needs and service context associated with their respective SL projects, they could work more effectively with the local students to address shared project objectives. Mutual project engagement enabled local and IE students alike to appreciate the insights arising from cross-cultural sharing, decision-making, and problem solving:

> I benefited from the experience here working with people from a different culture with different working styles and different attributions and everything, and so I learned to adapt even with people not of my style. [M21E, Team 1].

> After this experience, [I realize that] it is helpful working with [IE] students. We can widen our knowledge horizon through our diversity and different ideas. [F24L, Team 2].

> I think they [local students] are also much more open-minded. They were so shy in the beginning … They were not good English speakers, but we also were not that self-confident at the beginning. I think nowadays they have no problems to talk to us. No problem. This team was very good. [M22E, Germany, Team 2].

> For us, it is more important to share our cultural experiences. Also, we came here to see the Hong Kong culture, the Chinese culture, so it is really nice to talk to them [local students]. [M23E, Germany, Team 2].

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Discussion and Contributions

We found that although language proficiency gaps constituted a major barrier to the development of cross-cultural cohesiveness, these gaps could be offset by adopting appropriate communication strategies within the teams. These findings are comparable with those of Imamura et al. (2016), who found that the inclusion of communication variables other than linguistic proficiency may provide a more conclusive picture of how intergroup contact theory works in an intercultural context. They further proposed that future studies should examine intergroup contact theory from the perspective of Americans staying in East Asian locations as well as East Asians' perceptions of Americans staying there with the aim of extending the scope of the theory in an intercultural context. Our research has focused on the intercultural experiences of students in Hong Kong from the perspective of both local students and IE students with an American among the latter.

Theoretical Contributions

We shall recap Allport's (1954) four conditions for prejudice reduction, which by implication would be conducive to the reduction of cross-cultural barriers and to the development of team cohesiveness among the local and IE students. These conditions are (1) authority support, (2) equal status, (3) intergroup cooperation, and (4) common goals. As explained next, while the university and/or the instructors sought to provide a supportive framework for these four conditions, the realization thereof depended on communicative initiatives and acts of reciprocation among the team members.

Regarding the first condition, by opening registration on SL courses to IE students, the university provided legitimation for the community involvement of IE students, but when the teams were working at the community sites, the PORs, by speaking Cantonese only, left it to the teams themselves to work out how to support the community involvement of the IE students. Regarding condition two, by applying the same assignment and grading structure to local and IE students alike, the university may have assumed that both groups of students would be afforded equal status on the SL courses. In practice, however, the ability of the IE students to access project information, and to contribute to project decision making depended upon the willingness of the local students to adopt English as the medium for team discussion. Regarding conditions three and four, by arranging for the teams to comprise a mixture of local and IE students, instructors created a framework for cooperation between the two subgroups in working toward common goals including satisfaction of community expectations regarding the SL projects. Once again, the ability of IE students to cooperate with the local students depended on the latter's willingness to communicate in English, while in addition, sustained cooperation depended on the IE students' willingness to reciprocate by, for example, offering creative ideas, exercising forbearance and good humor, and compromising about the scheduling of meetings.

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Our study thus indicates that the reduction of cross-cultural barriers between local and IE students, and the developmental outcomes arising from team cohesiveness, depend on the emergence of mutual goodwill among the participants, in this case, students, through acts of initiative and reciprocation.

Practical Implications

Cultural preferences. Prior commentators have proposed some university level approaches for preparing IE students for engagement in cross-cultural project teams. Almeida et al. (2016) suggested that IE students could be introduced to dimensions of cultural preferences, such as individualism vs collectivism, as a means for understanding potential sources of cross-cultural conflicts. Sato and Hodge (2015) suggested that IE students should be primed to reframe cross-cultural stressors as opportunities for personal and professional growth. We believe that these measures would be constructively reinforced if they were adopted by both home and host universities as part of their programs for both outgoing and incoming IE students.

Contact relationships. We have some suggestions, based on our research, about building a foundation for high quality contact relationships within mixed SL teams. The host university could include information about the team-related obligations entailed by enrolling in an SL course in its briefing materials and induction programs. At the course level, we suggest that a team building session be provided by a supporting unit (e.g. office of service-learning) early in the semester to alert students to the importance of adopting and practicing skills of reaching out to, listening to, and resolving conflicts with peers. This arrangement may be especially important if teamwork is not the topic of the course. Instructors are also advised continually to encourage students to recognize the potential benefits of cultural diversity as a resource for teams.

Language barriers. We recommend that instructors of SL courses remind students that if they are in cross-culturally mixed teams, it is vital to hold team meetings in a language medium that is well-understood by all team members, which typically would be English. Instructors may also encourage local students in mixed teams to provide interpretation services for IE students when their team is interacting with service recipients who do not speak that language. Host universities that offer SL courses could incorporate these ideas into their guidelines for instructors. Alternatively, or in addition, host universities that offer programs in translation could find ways to arrange for students, who are majoring in translation to provide the necessary translation services as part of their own project work requirements.

Personality factors. We consider it important that prospective IE students are screened by the home university for their readiness to participate in an IE program. In addition, in view of the apparent marginalization of one of the IE students in our study, we suggest that at the course level, when forming SL teams with local and IE students, where possible it is advisable to avoid having only one IE student in a team, unless that student already appears to have strong

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intercultural skills. Instructors of SL courses are also advised to monitor the team participation of their IE students and to provide advocational support if it appears that they are being marginalized during team discussions.

Limitations and Further Research

This research was limited to two courses at a single host university site. There may be different findings with SL courses on other subjects at the same site and at other host universities in Hong Kong or elsewhere. Studies of projects undertaken by inter-cultural SL teams on various courses at host universities in other jurisdictions would facilitate the generalizability of the findings. As the use of social media in education becomes more extensive, it would also be interesting to conduct further investigations into how the use of social media for communication within intercultural SL teams, and even for communication between such teams and their community stakeholders and end-beneficiaries, can facilitate or hinder the development of team cohesiveness. Further studies of the development of cohesiveness in intercultural SL teams with differing proportions of local and IE students could also be conducted. Longitudinal studies including the post-sojourner stage, covering the period when IE students have returned to their home countries, would reveal their perceptions of the long-term impact on their development of participating in intercultural SL teams with varying degrees of cohesiveness. Instruments such as S-LOMS (Lau & Snell, 2021; Snell & Lau, 2020) could be used to compare the self-perceived developmental impact on students of conducting SL in teams comprised entirely of local students versus in intercultural teams.

Conclusion

This study of four cross-cultural teams engaged in SL indicated that although informants identified various barriers to cross-cultural collaboration, in two teams these barriers were overcome, while some progress was made in developing cohesiveness between local and IE students in a third team. Breaking down language-related barriers required extra effort from the local students and patience and good-humor on the part of the IE students. In addition, compromises were necessary regarding the arrangement of meeting times and the setting of deadlines for project contributions. Resolving scheduling conflicts required team members to express their own needs and concerns openly as well as to appreciate the needs and concerns of others.

In the three teams that had made progress in developing cross-cultural cohesiveness, it appeared that cross-cultural diversity became a source of inspiration and fruitful ideas. Among members of these teams, IE and local students alike perceived their skills of English communication had been sharpened. Some IE students felt that they had acquired deeper understanding of the local culture while some local students stated that they had overcome anxieties associated with interacting with foreigners.

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Original Research

Hierarchical Microaggressive Intersectionalities: Small Stories of Women of Color in Higher Education

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Abstract

This article uses methods from narrative analysis to consider how the macro-level experiences of racism and sexism appear in micro-level small stories about hierarchical microaggressive intersectionalities (HMI) in higher education. Small stories shared by university faculty and administrators reveal that microaggressions were simultaneously experienced along the lines of race, gender and role in the institution. Themes emerge that link deprofessionalization, invisibility, and fatigue to these small stories. On a nuanced level, the narratives in this paper demonstrate how broader societal notions of women's and women of color's roles in institutions translate into a negative campus climate for those who experience HMI.

Keywords: campus climate, equity, diversity, cultural competence higher education, race, gender, microaggressions, institutional development

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Introduction

> Nobody in their right mind is going to call me the N-word. …, because true racism is being able to have power over somebody else. So that doesn't happen to me that way. It shows up for me if I'm in a boardroom or situations where I'm the only woman or I'm the only African American person within a hundred mile radius. I can see in the energy of the people there, they don't sense that I should be holding one of those seats. I can sense that. But I can never tell. Is it racism? Is it sexism?
> —Oprah Winfrey

This quote exemplifies a phenomenon experienced through living in a stratified society – receiving racial and gender microaggressions in the workplace. Even though there are women in positions of power in organizations, there remain moments in their work-lives where their race or gender or both are called into question in relation to the role they hold. This becomes even more problematic when it is difficult for the person experiencing the microaggression to name the form of discrimination being experienced due to its nuance, like in Oprah's quote above.

Researchers have exposed the multiple marginalities experienced by women of color on institutional campuses (e.g. Turner, 2002). This paper dives into a specific way that these multiple marginalities manifest as hierarchical microaggressive intersectionalities. Hierarchical microaggressive intersectionalities (HMI) are those everyday slights found in higher education that communicate systemic valuing (or devaluing) of a person due to the interplay between their institutional role and their other identity categories like race and class**.** Hierarchical indicates how the position held at an institution indicates value for those who work in the institution, microaggressive indicates the impact of discriminatory experiences, and intersectionalities indicates how the women do not just experience microaggressions with one aspect of their identity, but often through many aspects of their identity simultaneously. The goal of this study is to answer the question: What can be learned about campus climate from how women in higher education explain hierarchical microaggressive intersectionalities against them? This paper problematizes the ways in which important aspects of institutional actors' personal and professional identities intertwine in the use of their small stories. It also theorizes the role HMI play in campus climate in order to better understand how multiple systems of oppression (Collins, 2000) intersect and interact for women in higher education.

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Literature Review

Research into microaggressions is situated in the larger body of research into campus climate and informs a discrete, yet pervasive, experience of women (of color) in higher education, that of feeling unwelcome, devalued, and under-acknowledged because of their role and their race and their gender (e.g. Solórzano, Ceja, & Yosso, 2000). A negative climate impacts recruitment and retention of faculty, staff, and administrators from historically marginalized groups (Turner, Gonzalez, & Wong, 2011). They report unequal treatment in "hiring, work expectations, and promotion and tenure resulting in increased stress, decreased job satisfaction, and attrition" (Lutz, Hassouneh, Akeroyd, & Beckett, 2013, p. 129). Additionally, women of color in higher education experience the intersection of racism and sexism resulting in increased marginalization and isolation (Ahmed, 2012; Sulé, 2011; Turner, González, & Wong, 2011).

This study builds from microaggression, hierarchical microaggression, and intersectionality research. The term microaggression is used to describe, "brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights and insults toward people of color" (Pierce, Carew, Perce-Gonzalez, & Willis, 1978; Sue, Capodilupo, Torino, Bucceri, Holder, Nadal, & Esquilin, 2007, p. 271). This microaggression definition has expanded to include not just racial slights, but slights against other identity markers like gender identity, sexual identity, disability, etc. (Basford, Offermann, & Behrend, 2013; Lewis, Mendenhall, Harwood, & Huntt, 2013; Nadal, 2013; Torres-Harding, Andrade, & Romero Diaz, 2012). Early microaggression researchers examined the effects of "differentials in power and privilege" (Hurtado, Arellano, Griffin, & Cuellar, 2008, p. 217) between students from dominant racial backgrounds and those historically underrepresented at institutions, yet there is limited examination of how employees, who spend even more time on university campuses than students, experience microaggressions (Christensen-Mandel, 2019; Young, Anderson, & Stewart, 2015).

A few studies represent faculty experiences with microaggressions (Boysen, 2012; Constantine, Smith, Redington, & Owens, 2008; Pittman, 2012), and others show the experiences of microaggressions of university administrators (Alabi, 2014; Garvey & Drezner, 2013; Young, Anderson, & Stewart, 2015). Employees, much like students, experience varying degrees of power and privilege on college campuses; their powers and privileges often relate to their professional roles. Some roles are thought of as more or less significant, with higher or lower importance (Ingram, 2006). In many ways the importance of the role impacts the importance of the person who holds that role (Hirt, 2006). Importance translates into a value judgment on the person who holds that role, with people in less-valued roles treated as less-valued people (Fuller, 2003). Role often becomes the defining identity at institutions since higher education organizes employees into three main groups: faculty, staff, and administrators, each representing different

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aspects within the academic hierarchy (Christensen-Mandel, 2019). Slights in the university context impact employees emotionally and physically, and reflect the goals and values reflected through campus climate (Hurtado, Arellano, Griffin, & Cuellar, 2008). Nixon (2017) shares stories of female chief diversity officers (CDO) who must navigate microaggressions as part of their role at their universities and how they must balance competing expectations related to their identity and role. She notes how these CDO's experiences parallel other values on campuses.

Young, Anderson, and Stewart (2015) point to the unique type of microaggressions found on university campuses - hierarchical microaggressions - to represent the everyday slights found in higher education that communicate systemic (de)valuing of an employee because of the institutional role held by that person. Findings from this study indicate four main types of hierarchical microaggressions: (1) valuing/devaluing based on role/credential, (2) changing accepted behavior based on role, (3) actions (ignoring/excluding/surprise/interrupting) related to role, and (4) terminology related to work position.

One aspect missing from the microaggression literature and that of hierarchical microaggressions is the intersection between genres of microaggressions. How do race and gender microaggressions overlap, interact, and weigh on each other? How does the literature explain microaggressions that engage with more than one identity category simultaneously? The literature on intersectionality addresses these intersections and overlaps. Intersectionality theorists examine the interactions of co-occurring systems of oppression (Collins, 2000; Crenshaw, 1989). Intersectionality is not just about examining personal identities, but also about examining the institutions that use identities to exclude, include, and privilege (Crenshaw, 2015). Researchers have examined the relationship between social identities and personal identities (Jones, 1997; Shields, 2008). Other researchers examine race and social class (Liebow 2002; Sung 2013), disability and race (Hill 1994; Stuart 1992), disability and gender (Thomas 1999; Thomson 1997; Wendell 1996), gender and race (Collins 2000; hooks 1994), disability and sexuality (Meyer 2002), and intersectionality and higher education (Dill, 2009; Winkle-Wagner, 2009). Critical race feminists examine how race, ethnicity, nationality, and other identities shape how gender is experienced in higher education and in other organizations (Cho, 1997; Gilmore, 2003; Montoya, 2003). These researchers all highlight the importance of not assuming that people of any given category have similar experiences, although they do recognize the need to be "strategically essentialist—to speak as a group (as Asian women, for example) when it is politically necessary to do so" (Ropers-Huilman, & Winters, 2011, p. 669). Examining multiple oppressions simultaneously explains how similar experiences on the surface can be more or less oppressive depending on salient identities in context, like having a student call a professor by their first name can be a sign of a strong relationship or a sign of disrespect (Ropers-Huilman & Winters, 2011).

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Critics of microaggression research, most notably Lilienfeld (2017), have asked about the imprecise nature of microaggressions and have queried the psychological nature of these claims – why should we believe how someone feels about their interactions when they may be wrong. Lileinfeld notes that people might disagree about naming an experience as a microaggression. He concludes that this disagreement indicates a lack of nuance in the research to tease out definitively if something is or is not a microaggression. Researchers have responded to these sorts of critiques (e.g. McClure & Rini, 2019; Sue, 2018). McClure and Rini (2019) explain how theoretical investigations often fall into three types of investigations: psychological, experiential, and structural. Critiques, like those of Lilienfeld (2017), ignore the structural aspects of microaggressions. Examining microaggressions from a structural perspective explains not just how someone "feels" about the microaggression, but also places the microaggression as a structural component of racism or sexism. A structural analysis of microaggressions reveals that people who experience microaggressions are also often from groups who are hired less, promoted less, have higher levels of stress once in academic, etc (e.g. Solórzano, 2018). Microaggressions are psychological and structural.

Smith, Yosso, and Solórzano (2006) hint at an intersectional analysis of microaggressions when they define microaggressions in part as "layered insults based on race, gender, class, sexuality, language, immigration status, phenotype, accent, or surname" (pg. 300). Pérez, Huber, and Solórzano (2015) have also interrogated this idea through their taxonomy of microaggressions. Layered insults evoke the same image of piling up of co-occurring oppressions as argued by Collins (2000). Watson (2007) similarly explains how "individuals have a range of identities with different ones acquiring salience in different contexts" (pg. 372). Watson points to the fluidity of identity categories, another aspect of intersectionality. Holling (2019) actively describes intersections of race, gender, and institutional roles as she examines her experiences with being labeled "intimidating" in the academy. She notes that, "Power derives not only from primary identity categories but also from institutional role, rank, and/or status" (p. 107). This study extends analysis like that of Holling (2019) and adds to it through examination of HMI. Three ways that HMI indicate structural disadvantage for women and women of color are deprofessionalization, (racial battle and gender) fatigue, and invisibility.

Deprofessionalization

Women, and women of color, in higher education have shared their stories and been the focus of research about what it means to not be treated like a professional when one's role is to be a professional (Gutiérrez y Muhs, Flores Niemann, González, Harris, & Gonzalez, 2012). Black faculty are racially stereotyped at work and are expected to entertain their colleagues in ways not expected of their white counterparts (McGee & Kazembe, 2015). Professors who study issues related to race are assumed to be less credible, less serious, and less rigorous than colleagues who study other research areas; this is especially true for African American professors who study

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race (Thompson & Louque, 2005). Faculty of color and female faculty do, and are expected to do, a disproportionate amount of service work like mentoring and advising students and junior faculty, serving as a faculty advisor for campus clubs, and being on committees (Nicol & Yee, 2017; Nixon, 2017). In courses, students are less likely to take female faculty of color seriously as academics as they do not fit traditional expectations of what a professor should be (i.e., White and male). Students, not seeing female faculty of color as professionals, are more likely to challenge course content (Ford, 2011). Faculty of color, administrators of color, and women of various backgrounds face students, other faculty, and administrators who assume a lack of qualification for or capability of faculty work or administrative work, and then must hide their feelings of frustration and annoyance that result from being treated as less than a professional over and over in the workday. The message these women receive is that they do not belong and cannot do the work – they are not professionals.

Fatigue

Women in higher education are professionally exhausted. Racial Battle Fatigue (RBF) is described as "social-psychological stress responses (e.g., frustration, anger, exhaustion, physical avoidance, psychological or emotional withdrawal, escapism, acceptance of racist attributions)" (Smith, Allen, & Danley, 2007, p. 552) associated with being a person of color and the repeated target of racism. Constant race-based discrimination can produce emotional, psychological, and physiological distress and cover up the consequences of discrimination on the material realities of marginalized faculty. RBF is the cumulative effect of being "on guard" and having to continually be prepared to respond to insults, both subtle and covert. Faculty from marginalized groups often discuss having an "arsenal of responses" as tools of self-protection from racial macro and microaggressions (Smith, Yosso, & Solórzano, 2008). Gender fatigue is the fatigue of trying to mentally construct workplaces as gender neutral despite the continued evidence of gender discrimination and the powerlessness to change these structures of reproduction (Kelan, 2009).

Invisibility

Faculty of color, women of color, and other women, have all pointed to their invisibility in higher education (Constantine, Smith, Redington, & Owens, 2008; Ford, 2011). This invisibility is often enacted by others seeing or not seeing marginalized groups (Ford, 2011). Taylor states, "Our identity is partly shaped by recognition or its absence, often by the misrecognition of others, and so a person or group of people can suffer real damage, real distortion, if the people or society around them mirror back to them a confining or demeaning or contemptible picture of themselves. Nonrecognition or misrecognition can inflict harm, can be a form of oppression, imprisoning someone in a false, distorted, and reduced mode of being" (Taylor, 1992, p. 25). Nonrecognition or misrecognition relates to the power and privilege of the person who does not

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see another. Invalidating personhood through nonrecognition or misrecognition is argued to restrict faculty of color's influence on their schools and on their school culture (Hassouneh, Akeroyd, Lutz, & Beckett, 2012).

Researcher Positionality

I am a White, female, middle class, professor. I have not held a position of leadership like chair of a department. As narrative research is interpretive, my background and biases must be clarified (Merriam, 2009). I have certainly received HMI related to my age, gender, and role, but not related to my race. I personally know the feeling of wondering, "Did that really just happen?" "Am I going to be supported in reporting such a 'small' transgression?" Given that I have many non-marginalized identities, identities that are associated with privilege and power at an institution, I can go many days without experiencing a microaggression. I cannot say the same for many of my colleagues of color.

I am a black, male, middle class, administrator and professor. I have held leadership positions like Vice President for Inclusive Excellence, Associate Chair of the Teacher Education Department and Professor within the School of Education. As narrative research is interpretive, my background and biases must be clarified (Merriam, 2009). I have certainly received HMI related to my age, gender, race, and role. I have experienced the feelings of wondering, "Wow, that really just happened" and "Is this action a one-time thing or is this who they really are and I will have to deal with these negative slights throughout the relationship?" Although there are very few spaces where my marginalized identities may be minimized, there is almost never a day that goes by where I do not experience microaggressions.

Methods

In order to answer what can be learned about campus climate from how women in higher education explain hierarchical microaggressive intersectionalities against them we used a purposeful sample and analyzed small stories from the sample using critical discourse analysis.

Research Context

Metropolitan State University of Denver (MSU) is an urban, land-grant university in a mountainous region of the United States. This university leads the state in enrolling a diverse student body and employing a diverse faculty. MSU Denver has about 20,000 students, 95% of whom are in-state. 46% of undergraduates are students of color, 56% are the first in their family to go to college, nearly 80% of students work full or part time, and nearly one-half are Pell-eligible. The institution was designated as a Hispanic Serving Institution in 2019. The demographics of MSU Denver's full-time faculty population is made up of 74% White, 10%

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Hispanic or Latinx, 5% African American, 8% Asian, 2% Bi- or Multi-racial, <1% American Indian or Alaskan Native, 0% Native Hawaiian or Pacific Islander and 1% other. 52% of full-time faculty identify as female and 48% identify as male (U.S. Department of Education, 2017). The demographics of MSU Denver's administrative staff population identifies as 67% White, 17% Hispanic or Latinx, 5% African American, 6% Asian, 3% Bi- or Multi-racial, <1% American Indian or Alaskan Native, <1% Native Hawaiian or Pacific Islander, and 1% Other. 62% of administrators identify as female and 38% identify as male (U.S. Department of Education, 2017).

Data sources

Although limited in scope, this exploratory study grew out of a case study of cultural competence trainings for supervisors. In the original study a total of 191 examples of microaggressions were gathered from phrases written on butcher paper (Young, Anderson, & Stewart, 2015). In the original study the researchers used Sue et al. (2007) microaggression theoretical framework to examine data from the cultural competence trainings. Unfortunately, this data came in the form of phrases written on butcher paper. Many of the phrases did not provide enough detail to examine race, gender, and role simultaneously.

The authors extend the original data sources by collecting a purposeful sample and invited known female faculty and administrators to share personal examples of microaggressions. Each of these women had participated in a cultural competence learning community for staff, administrators, and faculty with the researcher. Nine of the ten had been participants in the supervisor trainings as well. They were chosen because they already knew about the concept of microaggressions and would be able to provide examples if they had any of microaggressions at work. They were individually emailed and asked: "If you have 5 minutes, can you jot down an example of a microaggression that has happened to you or someone you know related to role intersecting with an identity characteristic and send it to me." All ten people who were asked responded with small stories within ten minutes.

Participants

Ten women participated in this research. Seven self-identify as people of color and three self-identify as White. Three hold the role of faculty, four hold the role of administrator, and three are both faculty and administrators as they are department chairs.

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Table 1. *Participants*

Race	Gender	Role
Person of Color	Woman	Faculty
White	Woman	Administrator/ Faculty
White	Woman	Administrator/ Faculty
Person of Color	Woman	Faculty
Person of Color	Woman	Administrator
Person of Color	Woman	Administrator
Person of Color	Woman	Administrator
Person of Color	Woman	Faculty
Person of Color	Woman	Administrator
White	Woman	Administrator/ Faculty

Data Analysis

The authors employ a narrative approach to understand the types of microaggressions experienced by women in higher education related to the role they hold at the institution. In this study narrative analysis through the lens of small stories helps explain the value in using emails as a source of data. Narrative researchers connect the lives and stories of individuals to social phenomena and to dominant discourses (Watson, 2007). These language practices help the teller to (re)construct their identity in their current social, cultural, and historical contexts (Gover, 2003). Stories are constructed by a narrator who chooses from their experiences and orders the events in a meaningful way, an order that considers her own interpretation of those experiences. Narrative can be thought of as an interpretation of reality rather than a direct reflection of that reality (Dyer and Keller-Cohen, 2000). The use of (counter) story telling is also a key component of critical race theory (CRT) and critical race feminism (CRF) because these counter-stories challenge the silence of "race-neutral" storytelling. These small stories help faculty and administrators from marginalized groups discuss the race-related and gender-related stress they experience at institutions. These narratives give voice to the marginalizing experiences and oppressions that can occur at the intersections of race, class, gender, role, and sexual orientation in higher education. These narratives start to capture the complex components of individuals' experiences related to their personal and professional identities.

Small stories come from a need to share what just happened and to use that sharing to construct a sense of who someone is in the moment (Bamberg & Georgakopoulou, 2008). The immediacy of email works for the ability to share in the moment. Small stories act as sites of identity work because they exist between fine grained microanalysis and macro accounts of events in

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narratives (Bamberg & Georgakopoulou, 2008). Small stories play an important role in professional identity development (Grossi and Gurney, 2019).

The small stories in this study were evaluated using Critical Discourse Analysis (CDA). CDA is a methodology that focuses on the constructions of identity and marginality and works well to help explain faculty's and administrators' small stories in the larger context of what the stories have to do with campus climate (Dey & Associates, 2010). CDA researchers argue that language is a form of social practice in relation to how power, inequality, and dominance are maintained or resisted in talk and in text (Janks, 1997; van Dijk, 2008). The authors use critical discourse analysis with an intersectional lens to understand how small stories uncover institutional inequality through discourse (Fairclough, 1993, 2013; Gee, 2000).

Analysis begins with determining if each of the emails fits the qualifications of a small story and all did (Bamberg & Georgakopoulou, 2008). Inductive thematic analysis was then applied to the small stories to let themes rise to the surface (Miles & Huberman, 1994). The authors then returned to microaggression, hierarchical microaggression, and intersectionality literature and mapped the themes in the stories back to themes in the literature using deductive analysis. The deductive themes that occurred across the data and in the literature became the robust themes presented in this paper (Charmaz, 2006, Glaser & Strauss, 1976). The themes of invisibility, (racial battle and gender) fatigue, and deprofessionalization were found.

The next step was to reconstitute the stories and examine the interplay between invisibility, fatigue, and deprofessionalization within each small story. Returning to the small story as complete pieces for analysis situates the individual's lived experience in its larger institutional location, something which the themes alone cannot do (Jones, Kim, & Skendall, 2012).

Findings

The purposeful sample's small stories elicited three main themes: (a) deprofessionalization, (b) fatigue, and (c) invisibility. Seven of the ten stories evoked fatigue, five of the ten small stories evoked deprofessionalization, and five evoked invisibility/ erasure. Six of the ten stories reflected two themes and two of the ten reflected all three themes. The participant's race was not an important factor in the number of themes reflected in each small story.

An example of deprofessionalization:

> In giving my opinion how we needed to improve the services for Freshmen students of diverse backgrounds…a highly seasoned Dr. person, stated "you only have a masters in higher education right"? because the research says people of color fail due to …" .I don't know, remember the rest. I felt mad.

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This person indicates how someone denigrated her level of education in the exchange. Her quality of work and perhaps even her intellect was called into question. This exchange provoked an emotional response that made the respondent forget the end of the conversation.

An example of fatigue:

> Consequently, whenever I met with this committee, I always had to overly prepare and anticipate the potential "picking" at me.

This person indicates how she always must overprepare when meeting with a specific committee. She must emotionally steel herself to be potentially picked on in the committee. It is exhausting to have to be more prepared than others and to enter meetings steeled against being treated badly.

An example of invisibility:

> A colleague comes to talk about departmental issues and every issue is about a female colleague. And I am a female in leadership.

This person remarks how the other colleague sees her only as her position of leadership. They do not even question how sharing issues related to gender repeatedly might reflect on the gender of the person in leadership as well. Her gender is invisible to the colleague.

The themes were helpful in dissecting shared experiences across this group of women and in demonstrating how these experiences are microaggressive. However, until the themes are reconstituted back into small stories, they cannot show HMI experiences for the individuals. In the next section, we use one small story to demonstrate the interplay of these themes.

Below, a women faculty of color shares her small story and through Critical Discourse Analysis (CDA) we can see evidence of deprofessionalization, racial battle fatigue and invisibility. The authors used underlining and notations with a key to note deprofessionalization and invisibility in this small story.

This faculty member wrote:

> Students and fellow faculty refusing (1) to refer to me as Dr. Anton (name changed) even when they refer to others with their full titles (2).....choosing instead to call me "Miss Anton" or just "Anton" even after I have corrected them several times. Being absolutely invisible to some faculty (3a). Nearly bumping right into me (3b) or speaking to everyone else in the room EXCEPT me in polite conversation (3c). Even

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> standing at the bathroom sink and not speaking to me at all (3d) when they work with me on a daily basis - not faculty that I don't know very well, no, faculty that I work with every day (4). Or walking up to someone that I am currently speaking to and starting up a conversation with the same person that I was speaking to WITHOUT even saying "excuse me" or "could I butt in for just a moment" (5).....just completely acting like I don't exist or like they don't see me when I am a big, round, brown woman in the room who is probably wearing a bright color like turquoise or purple or orange or yellow (6). There is NO WAY that you just didn't "see" me unless you were trying to ignore me. (7)
>
> (1) active verbs on the part of the microaggressor: refusing, choosing, bumping, speaking, standing, walking, saying, acting, trying – indicating fatigue at always having to maneuver around others so actively trying to exclude her.
> (2) not using the formal address given to other faculty, even after correction – deprofessionalization
> (3a) stated invisibility
> (3b) example of invisibility
> (3c) example of invisibility
> (3d) example of invisibility
> (4) implied disrespect because it is known colleagues ignoring her – deprofessionalization
> (5) stated invisibility in two quick phrases
> (6) explaining how not seeing her would be impossible – invisibility
> (7) stated invisibility and implied deprofessionalization through showing that the faculty is not worth talking to.

In only 196 words, this faculty member demonstrated how often she actively becomes deprofessionalized by students and faculty who are not willing to call her "Dr." (Ford, 2011; Gutiérrez y Muhs et. al., 2012) and how she becomes invisible – remarking eight times in this short excerpt how people willfully ignore her physical presence; she is experiencing "intersectional invisibility" (Crenshaw, 1991). She later says, "I could go on and on" indicating the fatigue she experiences from many similar interactions. Further, the fact that she could go on and on demonstrates that this story is a form of generic or habitual small story, which communicates how common this type of interaction is for Anton (Georgakopoulou, 2008).

Limitations

Although a purposeful sample expedites data collection, pulls from a population that is easily accessible, and provides information-rich data related to the phenomenon of interest, purposeful sampling does not offer a robust enough method to generalize from the findings. This technique

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also allows for the introduction of sampling and researcher bias as the sample often does not reach a broad enough participant base (Nowell, Norris, White, & Moules, 2017). As this is an exploratory study using a purposeful sample, future studies will be needed to increase the trustworthiness through "prolonged engagement, persistent observation, data collection triangulation, and researcher triangulation" of these findings. For this study, transparency of the analysis and not extending the results to the global population is necessary.

The small sample size of small stories in this study results in our lack of ability to speak to certain theoretically important considerations. For example, there was no variation in race/ethnicity relative to participant role in the themes of the small stories in this study. Given the literature in this area, one would expect variation and a larger sample size would be better able to tease out this relationship.

Discussion

Workers prefer for their identities to not matter for interactions at work (Winkle-Wagner, 2009). This exploratory study however, shows how workplace interactions can be fraught with HMI, negative slights related to intersectional identities and the roles these women hold, when they are just trying to get their work done.

This and other small stories evidence fatigue, invisibility, and deprofessionalization in interaction with these women's professional roles. Although others may not intend to ignore Anton, the impact on Anton by repeatedly being ignored and not treated like a professional impacts how she feels as a professional. If small stories are a way to create a sense of who someone is in their professional sphere, then Anton's professional sense of self is deeply, negatively impacted through these experiences (Bamberg & Georgakopoulou 2008). She is tired and disrespected. There is no doubt that the campus climate for Anton is not a uniformly positive experience. She might not know if she is being disrespected for being a woman, a woman of color, a faculty of color, or some combination of these, and spending time trying to figure out why she is not treated as a professional by students and her peers keeps her from focusing on being productive in other ways (Mahtani, 2004; Sue, 2010; Sue et. al., 2007; Wong, Derthick, David, Saw, & Okazaki, 2013). This not knowing why she receives such treatment is a key component of microaggressions. She also does not know exactly how her role, gender, and race intersect for her to receive such unprofessional behaviors from others that force her to question her role at the university –a strong example of hierarchical microaggressive intersectionality.

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In Nixon (2017), the researcher shares an anecdote from a woman of color, faculty member:

> Melissa shared the frustration she feels when her ideas receive less credibility from her senior colleagues, and she wonders if that has to do with her race, her gender, her lack of faculty standing, or the ideas themselves (p. 310).

Melissa, just like Oprah in the introduction, wonders what aspect of her personal or professional identity is provoking a microaggression from her colleagues. She questions her "lack of faculty standing" – hierarchy; her race and gender – intersectionality; and even the ideas themselves –a key component of microaggressions – the uncertainty related to all these identities (Sue et. al., 2007; Sue, 2010; Wong et. al., 2014), But really, for Melissa, all her identities are being questioned simultaneously. Anton shares an example that evokes her blackness and her womanliness at the end of her small story of invisibility and deprofessionalization as a further example of how identity intertwines with deprofessionalization, fatigue, and invisibility. These quotes from Oprah, Anton and Melissa all provide examples of HMI.

These themes map onto role, gender, and race that together may render the microaggressee with a variety of stress responses like "frustration, anger, exhaustion, physical avoidance, psychological or emotional withdrawal, escapism, acceptance of racist attributions" (Smith, Allen, & Danley, 2007, p. 552). Understanding these experiences is critical to understanding how to move forward with supporting equity and inclusion in higher education. Women, and women of color who experience deprofessionalization, fatigue, and invisibility, might begin to disengage or look elsewhere for work, somewhere that does a better job of supporting their whole selves at work.

The small story in the findings section demonstrates how one experience by a woman of color, who is also a faculty member, experiences her various identities attacked simultaneously, not only because of her race, gender, or role, but through all at the same time (Watson, 2007). Being called by a first name might not be an issue for another faculty member who feels his/her role is more stable, more accepted at a university (Ford, 2011; Harlow, 2003). In fact, informality could show comradery and be a way to be inclusive. Given the historical and current experiences of faculty of color, and women of color at institutions, lack of professional naming acts as a slight (Harlow, 2003). Repeatedly marginalizing this female faculty of color on a seemingly individual level overlaps with reduction of women of color on campus and relates to power relation on who is "naturally" seen and unseen in professional institutions. It becomes a cumulative burden.

This data, through analysis of small stories, shows that women faculty and administrators of color experience the overlapping negative themes of deprofessionalization, invisibility, and fatigue in their professional lives. The research did not question frequency of these experiences, but two of the women of color, one faculty and one administrator, indicated they could go "on

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and on" about these sorts of microaggressions, which is consistent with other research on women of color in higher education (Lutz et. al., 2013).

This paper adds to the microaggression literature by demonstrating how HMI are similar to and different from other microaggressions and how HMI evidence deprofessionalization, fatigue, and invisibility of women of color on campus. This study broadens and deepens our understanding of the complexities of postsecondary education today as the experience of females and people of color and females of color in university leadership continue to struggle with bringing and sharing their full identities in the workplace. This small study is one step towards the call from Smedley and Faye Hutchinson (2012, p. 2) that argues: "Despite the difficulty, scholars must continue to struggle with making sense of the messiness of the "daily lived experiences of racism and the subtleties of the racial worldview as they impact on individuals" … "these are the kinds of realities that we MUST talk about."

The value of this project lies in the explanatory depth and specifics the small stories provide; for it is perception of the experience that matters for experiences on campus as negative or positive, "the perception has real, lived consequences as WOC (women of color) navigate race, gender, and power" (Ford, 2011, p.473).

Implications

Using narrative to examine microaggressions demonstrates how these small stories move respondents "actively between private and public, personal and cultural, past and present" (Gover, 2003, abstract) where the HMI they experience takes on a particular hue where the role a person holds, and the hierarchical position of that role, has value tied into the very idea of a university (Delgado Bernal & Villalpando, 2002; Walker-Canton, 2013). HMI are set against the backdrop of a lack of proportional representation on university campuses and higher education institutions and can make people from marginalized backgrounds feel like outsiders. Discrimination creates even more stress and anxiety and amplifies feelings of alienation in a space that is already not representational of people's identities (Cokley et. al., 2017). Campus environments can feel unsupportive and racially hostile, these feelings then lead to alienation, dissatisfaction, disidentification as part of the academy, and disengagement.

What can be learned about campus climate from how women in higher education explain microaggressions against them? This article, and others like it, share counter-stories so that campus climates become places rooted in empathy, "on the powerful impulse to usher both justice and humanity into everyday social transactions" (Runyowa, 2015, para 11) and become places that make structural changes to bring justice and humanity into university-based social interactions. Hierarchical microaggressive intersectionalities manifest differently depending on identity contingencies which makes them difficult to address through a "one-size-fits-all" policy

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approach, but there are many policy implications that can be considered, many coming from women and women of color in higher education themselves.

Researchers can focus their inquiry on accounts of lived experiences of people of color and other marginalized groups in professional roles at higher education institutions. We can work to maintain the true and complicated nature of individual and group identities within the research process (Carter-Sowell & Zimmerman, 2015). We can examine the interplay between which identities are more salient in which higher education environments in interactions with systems of power and privilege at higher education institutions. We can, through our research, rend transparent the power in interconnected structures of inequality as a precursor to dismantling the structures (Jones, Kim, & Skendall, 2012).

Institutions can put at the center of strategic plans and implementation of those plans the experiences and expertise of marginalized groups. They can recruit more women of color simultaneously to alleviate isolation and tokenization (Griffin & Reddick, 2011; Jones, Wilder, & Osborne-Lapkin, 2015; Ong, 2005; Rockquemore & Laszloffy, 2008). They can provide "structural and financial support for professional organizations that serve women and people of color" (Ford, 2011, p. 475; Turner, González, & Wood, 2008). They can engage task forces to closely examine interactional patterns between different groups and institutional policies and procedures that reinforce, inadvertently or purposefully, social exclusion, like the work being done at the University of Michigan (Jean-Marie & Lloyd-Jones, 2011; Sanchez-Parkinson, Grim, Chavous, & Ting, 2018). They can further work to reduce HMI by creating proactive and reactive educative spaces that transform policies, processes, programs, and value systems (Young & Anderson, 2018).

Ford (2011) reminds us:

> In order to be effective, change must occur on both the micro- (e.g., intergroup interactions; campus climate) and macro- (e.g., strategic reform to biased incidents; inclusive hiring, retention, and promotion practices) levels. Our challenge is to no longer participate in reproducing hegemonic narratives of difference that limit the professional experiences of WOC faculty; instead, we must continue to support counter-hegemonic narratives of resistance and institutional transformation" (p. 475).

As institutions strive to reflect the growing diversity of their students with proportional diversity of staff, faculty, and administrators, they must also invest systemically in the supports and policies needed so that no faculty, no administrator, no staff member, no student from an historically marginalized group has to say "I could go on and on" about the microaggressions they experience in higher education.

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Original Research

Engaging the Faith Community in Designing a Church-Based Mental Health Screening and Linkage to Care Intervention

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Abstract

African Americans are disproportionately burdened by mental health issues (e.g., stress, chronic depression, and post-traumatic stress disorder). Upon review of mental health local/state/national data, a highly-engaged faith-based Community Action Board (CAB) raised concerns about the mental health needs of African Americans and addressed mental health as a priority health area in African American Kansas City churches. African Americans tend to experience barriers to mental health services (e.g., limited access, high cost, mental health-related stigma, non-culturally tailored mental health care). African American churches have many strengths that could increase reach, acceptability feasibility, and impact of mental health interventions tailored for African Americans. The CAB conducted a health needs assessment survey (N=463; 11 churches) to identify health concerns and potential strategies to inform the design of a church-based mental health intervention. Using a faith-community-engaged approach, the CAB developed the survey and used its findings to design a religiously-tailored, multilevel mental health intervention focused on prevention, screening, and linkage to care. The needs assessment identified intervention strategies (e.g., church-based screening, stress reduction/exercise programs, pastors promoting mental health) that were: (1) rated as highly

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important/feasible to implement, (2) included in the intervention design, and (3) successfully implemented in African American churches by faith leaders and university students and faculty.

Keywords: mental health, African Americans, mental health screening, linkage to care, churches

Introduction

African Americans are disproportionately burdened by many mental health conditions compared to European Americans, including generalized anxiety disorder, post-traumatic stress disorder, depression, and substance use (Center for Behavioral Health Statistics and Quality, 2015; González, Tarraf, Whitfield, & Vega, 2010; Himle, Baser, Taylor, Campbell, & Jackson, 2009; National Center for Health Statistics [NCHS], 2016a; NCHS, 2016b; Watkins, Assari, & Johnson-Lawrence, 2015; Williams et al., 2007). African Americans are twice as likely as European Americans to report chronic stress and hopelessness (NCHS, 2016b), due to a myriad of factors (e.g., perceived discrimination, low incomes, and daily/family stressors) (Kasper et al., 2008; Mezuk et al., 2010; Williams & Mohammed, 2009). They are also more likely to experience greater disability and impairment (e.g., physical and social functioning) in response to mental health illnesses than European Americans (Hankerson et al., 2011).

Yet, African Americans tend to be less likely to seek screening and receive health services for mental health-related issues and disorders (Agency for Healthcare Research and Quality, 2010), are more likely to use the emergency department for mental health treatment (SAMHSA, 2015), and are more likely to not take their medications and drop out of mental health treatment than most other races. (Delphin-Rittmon et al., 2015). A primary barrier for African Americans seeking mental health services is mental health-related stigma (E. Ward, Wiltshire, Detry, & Brown, 2013). Several studies have found that African Americans tend to have greater negative perceptions of people living with mental health illness and are more suspicious of mental health services than other ethnic groups (Brown, 2004; E. Ward et al.; E. C. Ward, Clark, & Heidrich, 2009). Other barriers include limitations in health insurance, healthcare access, mental health literacy, and referrals/linkages to mental health services (Briggs, Briggs, Miller, & Paulson, 2011; Cruz, Pincus, Harman, Reynolds III, & Post, 2008; Rogers, 2007; E. C. Ward et al.). There is a tremendous need to increase the reach of mental health screening, prevention, and linkage to care (LTC) interventions with African Americans in collaboration with trusted settings such as African American churches, especially considering African Americans tend to be high church-attenders and consider religiosity to be highly important in mental health coping (Pew Research Center, 2015; Rogers, 2007; E. C. Ward et al.).

Collaborative partnerships between urban universities and faith communities have potential to drastically expand the urban university mission of civic engagement (Caret, 2019) to address

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health inequities in urban communities of color. Religious institutions often provide a "public face" for communities by providing leadership in the struggle for social justice and equality, including equal healthcare access (Idler, Levin, VanderWeele, & Khan, 2019). Illustrating the potential of such partnerships, the authors used a community-based participatory research (CBPR) approach to fully engage the Kansas City (KC) FAITH Community Action Board (CAB) in designing a mental health screening, prevention, and LTC intervention in African American churches for implementation by trained church leaders. Additionally, undergraduate/graduate level students from the University of Missouri-Kansas City (UMKC) were trained to assist in implementing the church-based activities (e.g., participant recruitment, mental health screenings) to provide an immersive experience and broaden their understanding of health disparities, social determinants of health, and community-engaged research while participating in meaningful service learning in underserved communities.

The design of the intervention was guided by a health needs assessment (HNA) process. HNAs have traditionally been used to gather information about health concerns from community groups to identify health priorities and determine potential solutions (e.g., Sharma, 2000). Information is also generated on the feasibility to implement identified, important solutions/strategies that can achieve meaningful improvements in proximal health outcomes and possibly, ultimately shift community-level indicators when taken to scale.

The purpose of this paper is to discuss HNA processes that led to the development of the Healthy Actions to Impact Mind and Soul (AIMS) project, an intervention designed to improve prevention, screening, and LTC regarding mental health vices in the African American church context. Here, key CAB HNA activities are discussed and include: (a) development of the HNA survey and assistance with recruiting churches for survey participation, (b) review of the HNA survey findings, (c) determination of important, feasible strategies to increase uptake of mental health screening that could be implemented via a faith-health-academic partnership, and (d) design of the resulting church-based mental health intervention that was eventually implemented by jointly by African American faith leaders and university students.

Methods

Background

The KC FAITH CAB is co-led by the study team and the Calvary Community Outreach Network (CCON), a leading faith-based organization with a mission of mobilizing churches to improve African American health in the urban KC area. The CAB consists of over 50 members from faith (primarily), health, and academic organizations. The CAB was formalized in 2012 – six years after the study team began conducting several National Institute of Health (NIH) and local-foundation supported research projects in collaboration with CCON and African American

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churches. Over this time, trust and mutual respect was established and reinforced from the study team. Trust-building efforts included fully engaging faith-based partners in the research – even in conceptualization of the research focus, sharing grant dollars via contractual agreements, and sharing in publications and dissemination of study findings, consistent with CBPR principles (Israel, Eng, Schulz, & Parker, 2013). This work also aligns with UMKC's strategic plan, which includes a focus on transformational undergraduate/graduate education through service to the community and transformational enhancements to social, cultural, health, and economic prosperity in KC's metropolitan area. Engaging students and the faith community in addressing health disparities enhances students' experiential education, collaboratively increases capacity to sustain the work in community settings, and helps to accomplish these university goals.

As guided by CBPR principles (e.g., forming academic/community partnerships, tapping community strengths, ensuring community representation in research processes, identifying key community concerns) (Israel, Eng, Schulz, & Parker, 2013), the KC FAITH CAB is highly engaged in all phases of the research from setting the research agenda, designing/implementing health promotion interventions, interpreting/disseminating study findings, and sustaining interventions. The CAB's highly active meetings are used to identify/discuss emerging health issues, create and culturally-religiously tailor church-based intervention components, establish appropriate recruitment strategies and study procedures for church settings, make sense of survey and intervention findings, forge new collaborative relationships between CAB members' organizations, and identify and implement strategies to maintain interventions that have been proven to be effective. The CAB meetings are held quarterly, last two hours with lunch served, and regularly have about 30 members in attendance.

Development of the HNA Survey and Inclusion of Mental Health Items

Development of the HNA survey has been described extensively elsewhere (Berkley-Patton et al., 2018) and is briefly described here with a focus on how the CAB addressed mental health. Two CAB meetings were used to discuss/review health disparities from national, regional, and local data sources along with members' lived experiences and personal knowledge. CAB members initially determined the HNA survey would focus on five health conditions: diabetes, heart disease/stroke, homicide/violence, HIV/AIDS, and asthma. However, after several CAB members expressed the need to address mental health, healthcare access, and strategies specific to faith-based settings, these items were added later and resulted in eight focus areas for the HNA survey. CAB members divided into subgroups and discussed disparities data relevant to their focus area and generated a list of potential strategies that together could make improvements in that area. This process generated 110 potential strategies across the eight focus areas that were included in the HNA survey. Twelve of the strategies focused on mental health (e.g., support families, provide stress reduction activities, provide counseling services).

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The study team used this information to draft the HNA survey, and used another CAB meeting to do member-checking on wording and survey items, which confirmed the inclusion of questions on receipt of depression/mental health screenings and diagnosis, receipt of services from a mental health professional and from a religious leader, and exposure to community violence. Once the survey document was finalized, faith-based CAB members helped the study team to connect with African American church pastors, provide information about the survey, and determine interest in their church's participation in having members complete the survey (see HNA Survey Procedures below). Based on survey results, initial priorities were identified as diabetes and heart disease/stroke. The CAB then proceeded to design a diabetes/heart disease/stroke prevention, screening, and LTC intervention (Project Faith Influencing Transformation [FIT]), which was been pilot tested. FIT is now a free weight loss and physical activity program based in African American churches in KC urban areas (Berkley-Patton et al., 2020) and is led by faith leaders paired with UMKC students serving as health coaches.

HNA Survey Procedures

Pastors who were interested in their church participating in the survey provided permission for the study team to share study information and conduct recruitment for the HNA survey with their church members. Church members consented and completed surveys immediately after Sunday morning and Wednesday night church services in sanctuaries and fellowship halls. Study procedures and materials were approved by the UMKC Institutional Review Board. The HNA survey included measures on demographics, health-related behaviors, health screenings (e.g., blood glucose, blood pressure, depression/mental health), and health condition diagnoses (e.g., diabetes, high blood pressure, depression/mental health), receipt of counseling from a pastor/religious leader (ever), receipt of mental health services from a mental health professional, and experiences with homicide/violence. Participants were also asked to rank African American health disparities (diabetes, heart disease/stroke, homicide, HIV/STDs, mental health, and asthma) in order of importance. Additionally, they were asked to rate potential health promotion strategies on degree of importance and feasibility (e.g., 1 = Very Unimportant at all to 5=Very Important), with strategies grouped by each health disparity issue and health care access and church services strategy categories. Descriptive findings (frequencies and means) specific to mental health are reported below.

Results

HNA Mental Health-Related Findings

Eleven churches (membership sizes of 50 to 750 members) from the Kansas City, MO and Kansas City, KS urban areas participated in the HNA survey. Among the 463 HNA survey

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participants, 449 were from the participating church members and 14 were CAB members who were not a member of a participating church. Due to missing gender data for seven participants, findings reported are on the remaining 456 participants (73% female; mean age 45, SD=16; age range from 18-93). Overall, 9% had received a depression/mental health screening in the last year, and 11% had been diagnosed with depression/mental health condition at some point in their lifetime. Other participant characteristics are shown in Table 1.

Mental health-related findings

56% of participants had visited a mental health professional at some point in their lifetime, and 49% had received counseling from a pastor or a religious leader. Also, 49% had been a victim of a violent crime (gun shot, physical fight, assault), and 52% had lost a family member/friend to homicide. These findings were reviewed with the CAB.

Table 1. Participant Characteristics (N = 456)

Participant Characteristic Variables	% (n) or Mean ± SD
Gender	
Female	73.2% (334)
Male	26.8% (122)
Age (mean ± SD)	45.3 ± 16.35
Race	
Black/African American/Mixed Race with African	96.7% (436)
American	3.3% (15)
Other	
Marital status	
Single/Separated/Divorce/Widowed	59.5% (275)
Married/ Living with partner	40% (185)
Education	
Less than high school degree	6.0% (27)
High school degree/GED	23.5% (106)
Post high school technical training	34.4% (155)
Some college	13.7% (62)
College degree or higher	22.4% (101)
Health coverage* (categories not mutually exclusive)	
Medicare	18.1% (83)
Medicaid	10.7% (49)
Private Insurance	49.2% (226)
Other Health Care	10.5% (48)
No Insurance	22.9% (105)
Don't Know	2.4% (11)
Average monthly income	

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$0-$1000	18.2% (83)
$1001-$2000	21.9% (100)
$2001-$3000	24.3% (111)
More than $3000	29.2% (133)
Don't Know	4.8% (22)
Church membership length (months; mean ± SD)	146.3 ± 179.4

The CAB also reviewed the ratings on importance/feasibility for the proposed health promotion strategies for mental health, healthcare access, and church-based activities to determine which strategies would be most impactful on improving mental health and promoting mental health screening with faith-based partners. HNA findings for these three focus areas are shown in Table 2. The top strategies in each of these three focus areas received the most attention in discussions. Among the mental health strategies, providing support to and enhancing communication with families, counseling services, and coping and stress reduction activities were highly rated as important and feasible in faith-based settings. Regarding healthcare access, providing linkage to affordable healthcare services, health fairs inclusive of screenings, support for churches' health ministry and training church leaders to be community health workers, text/email and other messages along with other communications (e.g., social media) were among highly rated strategies. Lastly, highly rated church-based activities included providing free health screenings, health professionals in church services discussing screening importance/procedures, risk checklists, and printed materials (e.g., church bulletins, health resources).

Table 2. Ratings on Importance and Feasibility of Proposed Health Promotion Intervention Strategies on Mental Health, Healthcare Access, and Church-Based Activities

Proposed Health Promotion Strategies by Health Disparity Issue[1]	**Importance[1] (Average)**	**Feasibility[1] (Average)**
Mental Health		
1. Offer classes on how to strengthen family relationships and communication.	4.2	4.0
2. Provide education on coping and stress reduction skills for youth and adults.	4.1	4.0
3. Provide church-based counseling services for individuals and families.	4.1	3.9
4. Assist families who are helping family and friends living with a mental illness.	4.1	3.9
5. Offer classes to reduce stress and express emotions like drawing, music, yoga, and meditative prayer classes.	4.1	3.9
6. Promote/offer mental health substance abuse programs.	4.1	3.8

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7. Offer ongoing education seminars for church and community members on anxiety, depression, suicide, traumatic events, substance use, and eating disorders.	4.1	3.8
8. Provide educational seminars on managing medication adherence and possible side effects.	4.0	3.8
Health Care Access		
1. Link uninsured persons to low-cost health insurance and free health services.	4.2	3.9
2. Provide churches with procedures and checklists to easily organize church-based health fairs, health screenings, and immunization events.	4.1	3.9
3. Provide training/support for churches to develop/sustain health ministries.	4.1	3.9
4. Use social media and other communication strategies (phone/text/email messages, church announcements) to encourage African Americans to seek regular health screenings, get immunizations, and engage in healthy behaviors.	4.0	3.9
5. Train church members to be community health workers to assist others with their health care needs (e.g., provide health referrals, coach on health behaviors, attend doctor appointments, provide emotional support).	4.0	3.8
6. Use social marketing to broadcast health promotion messages about health disparities through billboards, radio, social media, and church websites.	4.0	3.8
7. Provide members with adequate transportation to health care services.	4.1	3.7
8. Educate church and community members on preparing for medical visits (having list of questions, medications, and vitamins) to receive high quality care.	4.0	3.8
Strategies to Address Health Disparity Issues during Church Services		
1. Provide free health screenings (e.g., blood pressure, cholesterol, blood glucose [sugar], HIV/STDs, BMI) and risk assessments.	4.2	4.1
2. Use church websites to host health disparity information and videos.	4.1	3.9

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3. Distribute risk checklists to church and community members to determine their level of risk for each health issue that burdens African Americans.	4.1	3.9
4. Distribute directories with lists of resources for each health disparity issue.	4.0	3.9
5. Distribute church bulletins, brochures, fact sheets, and posters on each health disparity issue.	4.0	3.9
6. Have trained health workers who provide health screenings/ immunizations to fully describe the screening/immunization process in church services.	4.1	3.8
7. Provide vaccinations for flu, pneumonia, shingles, and other adult illnesses.	4.0	3.8
8. Have motivational messages from the pulpit and in church calendars to encourage members to seek regular health screenings and immunizations.	4.0	3.8

[1]All items had importance and feasibility response items ranging from 1 to 5; 5 = very important/feasible.

CAB Discussion and Design of a Church-based Mental Health Intervention for African Americans

CAB Discussion

Key topics intensely discussed by the CAB focused on: (1) limited availability of mental health screening and counseling services (e.g., difficulty in getting an appointment, high cost of services); and (2) the pervasive mental health stigma in African American church settings (e.g., church folk talking negatively about people with mental health issues, fear of screening outcomes, beliefs that believers can pray mental health issues away). Notably, there were lively discussions on spiritual versus clinical diagnosis of mental health issues. Some faith leaders expressed their beliefs that mental health issues can arise from worldly influences and sinful behaviors intended to "rob people of their joy and contentment." Other CAB members, especially those who were behavioral health clinicians and identified as persons of faith, discussed the science of mental health illness and how professional treatment and/or engagement in stress reduction and physical activities could help many mental health issues. In co-leading the discussion with CCON per CBPR principles, the study team encouraged CAB faith leaders and clinicians to openly express their opinions as a way to share scientific information and cultural perspectives, and ensure the intervention design would be grounded in science while respectfully addressing religious beliefs that could facilitate/ hinder uptake of mental health screening. Additionally, CCON faith leaders helped lead a CAB discussion on how some beliefs among people of faith could further exacerbate or alleviate mental health-related stigma. These

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discussions resulted in the CAB agreeing on the need for comprehensive religiously-appropriate intervention strategies (e.g., pastoral support in promoting/normalizing screening, church-based Christian yoga, church bulletins on mental health myths/facts and compassion for people living with mental health illness). They also stressed the importance of church-based mental health screening and LTC to assist in overcoming barriers to receiving services. Additionally, the CAB further identified community resources needed to develop, implement, and sustain the selected intervention strategies. This included bringing on UMKC's Community Counseling and Assessment Services as a health agency partner that could provide affordable, sliding scale-fees for counseling by trained/supervised clinical health psychology and counseling education doctoral students. Additionally, KC CARE Health Center was included as a health agency partner to provide community health workers who could assist church-community members with LTC services.

Design and launch of the mental health intervention by faith leaders

The CAB finalized the church-based intervention design with a focus on prevention, screening and LTC and named the intervention Healthy Actions to Improve Mind and Spirit (AIMS). Determined by the CAB, the primary aim of Healthy AIMS was to increase receipt of mental health screening among African American church-community members. They also sought to: (a) reduce mental health stigma; and (b) increase risk reduction behaviors (exercise and breathing), reduce stress/anxiety, and increase use of LTC services (secondary outcomes).

The Healthy AIMS project was piloted in four Kansas City, MO urban churches, randomized to the religiously-tailored Healthy AIMS intervention or a non-tailored educational comparison arm in 2019. Church leaders were trained to deliver Healthy AIMS components through multilevel church-delivery outlets, as guided by socio-ecological models (e.g., Bronfenbrenner, 1979). Key intervention components are shown in Figure 1 below and include: (a) promotion of healthy behaviors with church and community members through church outreach ministries using text/email messages (church-community level), (b) print materials (e.g., mental health risk checklists, responsive readings, brochures, church bulletins) packaged in a Healthy AIMS Tool Kit; pastors' promotion of physical activity, stress reduction, and mental health screening; and church-based mental health screenings (e.g., anxiety, depression, substance use) by UMKC clinical health psychology students (church services level), (c) Mental Health First Aid training with health ministry leaders and exercise classes (e.g., Christian yoga, Zumba) (group level), and (d) 90-day linkage to mental health services and community resources provided by a community health worker (individual level). Church-community members with screening results that indicated the need for further follow-up were referred to UMKC's Community Counseling and Assessment Services. As customary to the CAB's launch of new projects, a celebration was held to acknowledge the commitment and high-engagement of the CAB in developing and launching Healthy AIMS.

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Figure 1. The Religiously-tailored Multilevel Healthy AIMS Intervention

Discussion

As mental health concerns increase among African Americans due to everyday chronic stressors and diseases, grief from community violence, and young adult suicide (Clements et al., 2020; Compton, Thompson, & Kaslow, 2005; Hollingsworth et al., 2017; Howard et al., 2016; Patton, Woolley, & Hong, 2012), there is a growing need to reach African American populations who may be at risk for mental disorders in venues that are highly frequented and trusted. Urban universities are well-positioned to be key partners in these efforts to reach underserved populations with the goal of creating social change and eliminating health disparities in local communities (Peterson, 2014). Faith-based settings have long been acknowledged as a setting that can have tremendous reach with African American congregants (Campbell et al., 2007; Derose et al., 2019) and the community members they serve through church outreach ministries, particularly with prevention health screening interventions (Berkley-Patton et al., 2020; Berkley-Patton et al., 2018; Derose et al., 2019; Resnicow et al., 2004; Sattin et al., 2016). Thus, academic/faith-based organization partnerships are a vital means of addressing health and social issues in urban areas throughout the country.

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Findings from the HNA indicated that 9% of participants had received a depression/mental health screening in the past year, and 11% had been diagnosed with depression/another mental health problem at some point in their lifetime, which is consistent with past studies with African American populations (Himle et al., 2009; Williams et al., 2007). Depression rates are often higher among African Americans experiencing frequent racial discrimination (Hudson, Neighbors, Geronimus, & Jackson, 2016). Additionally, 56% of participants met with a mental health professional at some point in their lifetime, and early 50% met with a spiritual leader about mental health concerns. Other studies have found similar results regarding use of counseling services from religious leaders (Chatters et al., 2011), and suggest the appropriateness of equipping these leaders with training, tools, and resources to support their efforts in meeting the mental health and spiritual needs of their members while also referring them to professional mental health services. The National Institute of Mental Health and other national mental health organizations have recognized the importance of faith leaders, particularly in African American communities, and their ability to reach many underserved persons who would not otherwise seek mental health services (National Alliance on Mental Illness, 2016). Future research is needed on how trained faith leaders can improve access to mental health services and positive mental health outcomes with church-community members. Also, future practice is needed on how universities with clinical health psychology and/or counseling education programs, and community-focused mental health clinics can collaborate with faith leaders to support and sustain these efforts.

Recent studies have shown that appropriate tailoring of health promotion interventions to address health disparities can achieve improved health outcomes (Burton, White, & Knowlden, 2017; Lucas, Manning, Hayman, & Blessman, 2018), and that tailoring is best accomplished when community stakeholders are involved in establishing the research agenda, participating in the formative research, and contributing to the design of culturally appropriate study procedures and intervention components (Israel et al., 2013). The highly active CAB generated many potential feasible and important faith community strategies to enhance reach and mental health outcomes. Our survey findings indicated that provision of counseling services and screenings, training on stress reduction and coping, and seminars on mental health were top strategies deemed to be highly important and highly feasible to implement in African American faith communities.

These top strategies were then incorporated as components in the resulting faith-based mental health Healthy AIMS intervention, which was recently delivered by trained church leaders to their members through multilevel church outlets (e.g., church services, ministry groups). This intervention reflects a larger, global interest in how faith organizations can function as religious health assets in their communities, that is, resources that can be used to deal with health crises and concerns (Cochrane, 2006). Such interest has given way to large multinational efforts to examine the functional capacity of religious institutions to serve as health care resources, such as the International Religious Health Assets Programme (IRHAP), an international workgroup of scholars and practitioners working to better understand the intersection of faith and public health.

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This work joins a larger body of literature suggesting that faith communities can serve as valuable partners in developing strategies for addressing health disparities.

Of note, using a CBPR approach can be especially important when the health priority of interest is associated with stigmatizing beliefs that can thwart acceptability and feasibility of methods used and uptake of the resulting intervention (Corrigan, 2020; Michalak et al., 2016). To tap the many strengths of African American faith-based settings and tackle mental health stigmatizing beliefs, the authors highly engaged faith leaders along with health agency partners in every phase of the HNA process. At times, there were very different viewpoints on the clinical and spiritual aspects of mental health that were displayed in lively debates. These debates were fruitful and generative, since similar and differing viewpoints would have certainly arisen during church leaders' implementation of intervention strategies. Working through the HNA process helped to bring these differing worldview and clinical viewpoints to the surface and prepare faith, academic, health, and community partners to more effectively implement programs in ways to maximize each partner's strengths.

The iterative HNA process is also a testament to building ongoing capacity to address widespread health concerns, particularly with underserved populations (Sharma, 2000). The authors have used the HNA process to address diabetes and physical activity in faith communities. It could also be used to address newly emerging health disparity conditions (e.g., COVID-19). The HNA enabled our faith-health-academic partnership to make quick use of the HNA findings to address mental health while drawing on the strength of our longstanding collaborative relationships. Academic researchers and universities can play a key role in supporting strategic initiatives identified by community partners and helping translate initiatives into action in a timely manner, which is an advantage of CBPR. The team quickly leveraged its partnership with the university-based community counseling clinic and health agency partners. This allowed for both swift protocol implementation and valuable training opportunities for church health leaders and mental health trainees (students) providing church-based mental health screenings. Moreover, mental health trainees at the university's campus clinic receive specialty training in topics related to health disparities and social determinants (e.g., chronic stressors, chronic diseases, grief from community violence, and young adult suicide). Combining science with community lived experiences and shared resources can enhance the ability and capacity of all key stakeholders, academic and community partners, to work together to be responsive to the needs of underserved communities (Israel et al., 2013).

Despite the many success of the HNA process, limitations were existent. First, the information obtained in the HNA was reflective of church members and not necessarily of community members who might otherwise use church-based outreach services. Thus, future work seeking to develop screening and LTC intervention will benefit from the perspectives of community members engaged with the church but not necessarily active in the church. Second, the authors'

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sample consisted primarily of women and older adults. While reflective of past African American church-based studies (Bauer et al., 2019; Berkley-Patton et al., 2020; Christensen et al., 2020), future HNAs should aim to engage more African American men and young adults to gain a better perspective on the needs of these underrepresented populations. Third, due to mental health as highly stigmatized health concern, social reporting may have been occurring, although the findings on self-reported mental health screening and diagnoses were similar to national studies with African Americans (Himle et al., 2009; Williams et al., 2007). Fourth, the HNA results were largely based on survey results. Alternative methodological choices such as focus groups and key informant interviews could also be a useful way to elicit information from key stakeholders about needs and strategies to address those needs in the context of future research. Lastly, the strategies reflect the Fundamental Christian belief system highly represented on the CAB, therefore the resulting intervention may not generalize to other faith denominations and non-African American faith populations. Future efforts to develop and implement church-based mental health screening programs will need to be modified in light of the unique belief systems represented within each church or place of worship.

Conclusion

This paper highlights a CBPR-driven approach to developing a mental health prevention, screening, and LTC intervention in African American churches in Kansas City, MO. The authors used a faith community engaged approach and a HNA to identify important and feasible strategies to design and launch the Healthy AIMS intervention in African American churches. Overall, the HNA process highlights how faith-health-academic partnerships can collaborate to identify health priorities of importance to local communities, jointly develop interventions guided by data and experiential knowledge, even in the face of disagreements, and launch religiously-appropriate interventions that can be feasibly implemented by African American faith leaders with the communities they serve.

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Original Research

Factors Associated with Opposition to a Vape-Free Campus Policy

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Abstract

Objective. To assess the characteristics of campus populations who were opposed to a vape-free campus policy and examine factors associated with opposition to a vape-free campus policy among those who indicated support for a tobacco-free policy.

Participants. Faculty, staff, and students (N=2210) in a Midwestern university participated.

Methods. Individuals were invited to a campus-wide online survey about the tobacco-free policy on campus in spring 2018. Pearson's χ^2, *t*-test, and binary logistic regression were used for analysis.

Results. Age, gender, current tobacco use, perceived harmfulness of e-cigarettes, and perceived harmfulness of secondhand smoke were significantly associated with opposition to the vape-free campus policy.

Conclusions. Our data highlight the importance of various demographic factors that are associated with opposition to the vape-free policy. The current field needs to use informative approaches to improve knowledge of overall tobacco in health campaigns and public health programs on campus and within community outreach programs.

Keywords. health policy, Electronic Nicotine Delivery Systems, tobacco, surveys and questionnaires, cross-sectional studies

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Factors associated with opposition to a vape-free campus policy

American young adults are rapidly becoming addicted to new tobacco products known as Electronic Nicotine Delivery Systems (ENDS), commonly called e-cigarettes. Researchers reported that ENDS prevalence among U.S. adults was 4.5%. Notably, among young adults aged 18 to 24, it was reported as high as 9.2% in 2016 (Mirbolouk et al., 2018). There are a variety of types of ENDS. Recently, a novel ENDS product named JUUL has swept the nation. Although it was first introduced in 2015 (Stahr, 2015), its market share was reported to hit over 75% in 2018 (Craver, 2018). Due to the tiny size and flashy USB flash drive-like shape with little to no scent, JUUL users can vape regardless of the location, including classrooms and buildings on college campuses (Reimer, 2019; Veitch, 2018).

Harmful effects of smoking and secondhand smoke (SHS) have been well documented in the literature. Both smoking and SHS are significantly associated with cardiovascular disease (e.g., stroke), respiratory disease (e.g., chronic obstructive pulmonary disease), cancer, and other serious health conditions, including stillbirth, low birth weight, bone diseases (U.S. Department of Health and Human Services, 2010; 2014). However, the detrimental health effects of ENDS are quite poorly understood compared to those of traditional combustible cigarettes (Dinakar & O'Connor, 2016). Although there is limited empirical data, multiple ingredients in ENDS, including nicotine, ultrafine particles, flavorants such as diacetyl, volatile organic compounds (e.g., benzene), toxic heavy metals (e.g., lead and cadmium), and carcinogens (e.g., formaldehyde) are suspected to produce negative health outcomes (U.S. Department of Health and Human Services, 2016). There is a concern that ENDS use may serve as a gateway to nicotine addiction and eventually traditional combustible tobacco smoking in the future (Etter, 2017; U.S. Department of Health and Human Services, 2016). Peer influence has been shown to be a significant facilitator leading to the use of ENDS. Evidence exist that young adults who smoke daily experienced increased desire to use ENDS when they observed a peer who use ENDS (King et al., 2015). Social learning theory (Bandura, 1977) and the ecological perspective of health (Sallis et al., 2006) explain the putative mechanism by which individuals learn smoking through exposure to that behavior (Bandura, 1977). Additionally, the ecological perspective stresses the importance of a healthy environment and policies for better health (McLeroy et al., 1988; Sallis et al., 2006).

In the United States, tobacco control policies are being adopted increasingly on campuses to protect college communities against the deadly health hazards caused by tobacco and promote the rights of those on campus to breathe clean air. As of April 1, 2019, 2,356 campuses had implemented 100% smoke-free policies. Although 84.2% restricted all tobacco, including non-combustible products, and 83.4% prohibited ENDS on campus (American Nonsmokers' Rights Foundation, 2019), many colleges are hesitant to adopt vape-free campus policies. Campus administrators and populations may be reluctant or disagree with pushing the adoption of vape-

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free campus policies for various reasons. They may not know the exact constituents of secondhand vapor (Tan et al., 2017). They may also perceive ENDS not to be tobacco products, or there may be political issues at play involving campus groups who are in favor of vaping in colleges.

Strong constituent support is an important factor in adopting and implementing tobacco control policies (Satterlund et al., 2011). Nevertheless, research on characteristics of campus members associated with opposition to vape-free campus policies has been scarce. Braverman et al. (2017) reported the use of tobacco products (cigarettes, smokeless tobacco, and non-cigarette tobacco) as a predictor of opposition to tobacco-free policies, whereas predictors of support for these policies included smoke-free policy support, being female, international student status, exposure to SHS, and being over 55. A study by Brown et al. (2016) similarly found that non-users of ENDS were more likely to support vape-free campus policies than ENDS users. However, their study did not consider relevant demographic information (e.g., race/ethnicity, sexual preference, veteran status), environmental factors (noticing ashtrays or "no smoking" signs, etc.), awareness of the campus smoking policies, and perceived harmfulness of SHS and/or ENDS. There is a need for a more comprehensive assessment of individual characteristics or contextual factors that are associated with opposition to vape-free campus policies. Identification of such factors will provide essential information to develop effective strategies to establish and implement tobacco-free campus policies. Given the possibility of misconceptions of the definition of tobacco-free (whether it includes ENDS), the investigation of perceptions of ENDS-free (or vape-free) campus policies is valuable. Discerning the reasons why supporters of tobacco-free campuses would not support the policies for vape-free campuses is particularly important in initiating effective communications geared toward vape restrictions in colleges.

In this paper, we report results from a campus-wide survey open to all campus populations (students, staff, and faculty members) aimed at assessing levels and possible drivers of support and opposition for both vape and tobacco-free campus policies. Within the survey, we addressed a wide range of demographics, environmental factors, smoking policy awareness, and perceived harmfulness of ENDS and SHS. We aimed to assess the characteristics of individuals on campus who were opposed to a vape-free campus policy and examine factors associated with opposition to a vape-free campus policy among those who indicated support for a tobacco-free policy.

Methods

Participants and Procedures

In spring 2018, an email invitation from the Student Association with the link to the online survey about tobacco-free campus policies was distributed to all faculty, staff, and students at a university in Wisconsin. Only individuals who signed the online consent participated in the study survey. A total of 2,210 individuals participated in the survey, with an approximate response rate

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of 8%. This study was approved by the University of Wisconsin-Milwaukee Institutional Review Board before data collection.

Measures

Opposition to Tobacco-Free and Vape-Free Campus Policies

The question, "Do you agree that campus needs to adopt a policy that would make the entire campus 100% tobacco-free?" was used to measure the level of support or opposition to the tobacco-free campus policy, and the question, "Do you agree that electronic cigarettes (vapes) need to be banned in the tobacco-free campus policy?" was used to measure the level of support or opposition to the vape-free campus policy. Response options included "strongly agree," "somewhat agree," "neither agree nor disagree," "somewhat disagree," and "strongly disagree." "Strongly agree" and "somewhat agree" were considered support of the tobacco-free and vape-free policies and "somewhat disagree" and "strongly disagree" were considered opposition.

Demographic Characteristics

Participants reported age, gender, sexual orientation, race and ethnicity, and veteran status.

Tobacco Use and Exposure to Secondhand Smoke on Campus

Respondents reported their tobacco use status by responding to the question, "Do you currently use tobacco products?" Respondents were asked to report frequencies of exposure to SHS from cigarettes on campus; possible answers were "every day or most days," "some days," and "never." Participants were also asked to document whether they had seen ashtrays, receptacles, or "no smoking" signs on campus.

Awareness of Campus Smoking Policy

In the survey, we provided the current smoking campus policy statement (university prohibits smoking in all buildings, vehicles, parking structures, and within 25 feet of all buildings) and asked the participants whether they were aware of this policy before reading the statement.

Perceived Harmfulness of SHS and ENDS

The participants were asked to report perceived harmfulness of SHS on a scale of 1 to 10, with 1 meaning "not at all harmful" and 10 meaning "extremely harmful." Their perceived harmfulness of ENDS was evaluated with the question, "How harmful do you think electronic cigarettes (vapes) are compared to conventional cigarettes?" Responses included "less harmful," "about the same," and "more harmful."

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Analytic Plan

We used descriptive statistics to examine frequencies and percentages for categorical variables and mean and standard deviation for continuous variables. We used Pearson's χ^2 statistics to examine bivariate associations between characteristics (categorical variables) of the participants and opposition/non-opposition to the vape-free policy on campus. A t-test was used to examine the mean difference in perceived harmfulness of SHS between groups who agreed with the vape-free policy and those who did not. We used binary logistic regression to investigate factors associated with opposition to the vape-free campus policy among individuals who were in favor of the tobacco-free campus policy. For categorical variables with more than 2 levels, we used the overall significance of the corresponding variable and Bonferroni adjustment to evaluate pairwise effects between the reference variable and the rest of the variables. All statistical assumptions for bivariate and multiple analyses were met. The significance level was set at < 0.05.

Results

Characteristics of All Participants

Table 1 presents the characteristics of the campus participants between opposition and non-opposition to the vape-free policy on campus. A total of 40.3% of the participants opposed the vape-free policy. Nearly half of participants aged 29 or younger opposed the vape-free policy, but only a small proportion of the participants aged 40 or older disagreed with the vape-free policy. The differences in these age categories, dependent on the vape-free policy opposition, were significant. There were also significant differences in gender and sexual orientation categories regarding opposition to the vape-free policy. Participants who answered with alternate gender self-identification opposed the vape-free policy to a greater degree (64.6%), compared to those who identified themselves as men (54.2%) or women (28.5%). Heterosexual participants reported significantly more to the vape-free policy opposition compared to their homosexual counterparts. Latinx participants (49.3%) opposed the vape-free policy the most whereas non-Latinx Asians (29.7%) did the least. Race and ethnicity were significantly related to opposition to the vape-free policy. Approximately, 80% of the participants who had never been exposed to SHS on campus opposed the vape-free policy compared to only 22% of those who were exposed to SHS every day or most days. This difference in opposition to the vape-free policy by frequency of exposure to SHS was significant. In addition, respondents who have never seen ashtrays or receptacles on campus reported significantly more opposition than those who had seen them.

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Table 1. Characteristics of campus participants, stratified by opposition to a vape-free campus policy (N= 2210)

	Bivariate association			
Categorical Variables	Non-opposition (Support) N (%) or mean (SD)	Opposition N (%) or mean (SD)	χ^2 or t	p
Frequencies of non-opposition and opposition	1320 (59.7)	890 (40.3)		
Age			166.132	<0.001
≥ 60 years	81 (83.5)	16 (16.5)		
50-59 years	127 (82.5)	27 (17.5)		
40-49 years	143 (83.1)	29 (16.9)		
30-39 years	197 (72.4)	75 (27.6)		
26-29 years	117 (57.6)	86 (42.4)		
18-25 years	655 (49.4)	657 (50.1)		
Gender			158.635	<0.001
Woman	871 (71.5)	347 (28.5)		
Man	432 (45.8)	512 (54.2)		
Alternate self-identification	17 (35.4)	31 (64.6)		
Sexual orientation			27.375	<0.001
Homosexuality	182 (47.8)	199 (52.2)		
Heterosexuality	1138 (62.2)	691 (37.8)		
Race/Ethnicity			12.439	0.014
Latinx	74 (50.7)	72 (49.3)		
Non-Latinx white	1090 (60.4)	714 (39.6)		
Non-Latinx black	35 (67.3)	17 (32.7)		
Non-Latinx Asian	45 (70.3)	19 (29.7)		
Non-Latinx others	76 (52.8)	68 (47.2)		
Veteran			3.178	0.075
No	1261 (60.2)	835 (39.8)		
Yes	59 (51.8)	55 (48.2)		
Frequencies of exposure to SHS			333.406	<0.001
Every day or most days	728 (78.0)	205 (22.0)		
Some days	512 (55.1)	417 (44.9)		
Never	80 (23.0)	268 (77.0)		
Ashtrays or receptacles			96.844	<0.001
Seen	762 (53.1)	673 (46.9)		
Not seen	29 (44.6)	36 (55.4)		
Not sure	529 (74.5)	181 (25.5)		
No smoking signs			2.751	0.097
Not seen	495 (62.0)	303 (38.0)		
Seen	825 (58.4)	587 (41.6)		

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Current tobacco use			412.443	<0.001
No	1289 (68.6)	589 (31.4)		
Yes	31 (9.3)	301 (90.7)		
Awareness of campus smoking policy			32.285	<0.001
No	349 (70.8)	144 (29.2)		
Yes	971 (56.6)	746 (43.4)		
Perception of harmfulness of ENDS			381.414	<0.001
Less harmful	484 (40.8)	701 (59.2)		
About the same	652 (80.3)	160 (19.7)		
More harmful	184 (86.4)	29 (13.6)		
Perception of harmfulness of SHS	8.742 (1.694)	5.576 (2.787)	30.322	<0.001

Most current tobacco users (90.7%) disagreed with the vape-free policy, while only a third of the non-current tobacco users (31.4%) were opposed to the policy. A significantly greater percentage of the participants who reported awareness of the campus smoking policy opposed the vape-free policy (43.4%) than those who reported being unaware of the campus smoking policy (29.2%). Individuals who perceived ENDS as less harmful than cigarettes were significantly more opposed to the vape-free policy compared to those who perceived ENDS as more harmful, and those who perceived ENDS and cigarettes as equally harmful. Participants opposed to the vape-free policy reported significantly lower mean scores of perceived harmfulness of SHS than those who were not. There were no significant differences related to veteran status or noticing "no smoking" signs.

Characteristics of Participants Who Opposed the Vape Free Policy but Agreed with the Tobacco Free Policy

Table 2 presents the characteristics of the campus participants who favored the tobacco-free policy but opposed to the vape-free policy on campus. Out of 1458 tobacco-free policy supporters (66% out of the total sample), 219 participants (15.1%) opposed the vape-free policy. There were significant differences in the age and gender categories regarding vape-free policy opposition. More than 20% of the participants aged 25 or younger reported opposition to the vape-free policy compared to 10% or fewer of those aged 26 or older. And male participants were more often opposed to the vape-free policy compared to female and other than male and female participants. A significantly greater percentage of heterosexual participants were opposed to the vape-free policy than homosexual individuals. Participants who had not seen "no smoking" signs reported significantly more opposition to the vape-free policy than those who had seen the signs.

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Current tobacco users reported four times more opposition to the vape-free policy than non-current tobacco users, representing significant differences regarding opposition. Respondents who perceived that ENDS were less harmful than traditional cigarettes reported significantly more opposition to the vape-free policy than those who perceived that ENDS were more harmful or that ENDS and cigarettes were similarly harmful. Participants who were not opposed to the vape-free policy reported perceiving SHS as more harmful than those who were opposed to the policy. The difference in this perception level was significant. There were no significant differences in race/ethnicity, veteran status, frequencies of exposure to SHS, noticing ashtrays or receptacles on campus the surroundings, or awareness of the campus smoking policy in this sample.

Factors Associated with Opposition to the Vape-Free Campus Policy but Agreement with the Tobacco Free Policy

Table 2 is a representation of a binary logistic regression model to find factors associated with opposition to the vape-free campus policy among those who agreed with the tobacco-free policy. Controlling for all other variables (sexual orientation, race/ethnicity, veteran status, frequencies of exposure to SHS, noticing ashtrays or receptacles, noticing no smoking signs, and awareness of the campus smoking policy), age, gender, current tobacco use, perceived harmfulness of ENDS, and perceived harmfulness of SHS were significantly associated with the vape-free policy opposition. We adjusted multiple comparisons using Tukey's test to look at differences between groups with more than two levels including age, gender, and perceived harmfulness of ENDS. As shown in Table 3, the 18-25 age group had significantly higher odds of opposition to the vape-free policy than all others. Moreover, males had significantly higher odds than females to the opposition of the vape-free policy. Participants who answered that ENDS is about the same as or more harmful than conventional cigarettes had significantly less odds of opposition to the vape-free policy than those with less harmful. Figure 1 presents bar charts regarding statistically significant variables in the multiple logistic regression model.

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Table 2. Factors associated with opposition to the vape-free campus policy among individuals who supported a tobacco-free campus policy (N=1458)

	Bivariate association				Logistic regression model		
Variables	Non-opposition (Support) N (%) or mean (SD)	Opposition N (%) or mean (SD)	χ^2 or t	p	OR	95% CI	p
Frequencies of non-opposition and opposition	1239 (84.9)	219 (15.1)					
Age			78.709	<0.001			<0.001
≥ 60 years	76 (96.2)	3 (3.8)			Ref.		
50-59 years	120 (96.0)	5 (4.0)			1.023	0.214-4.883	0.977
40-49 years	139 (97.9)	3 (2.1)			0.742	0.133-4.146	0.734
30-39 years	185 (90.7)	19 (9.3)			2.149	0.554-8.331	0.269
26-29 years	109 (89.3)	13 (10.7)			2.639	0.643-10.883	0.178
18-25 years	610 (77.6)	176 (22.4)			5.240	1.454-18.888	0.011
Gender			21.168	<0.001			0.007
Woman	838 (88.1)	113 (11.9)			Ref.		
Man	392 (79.0)	104 (21.0)			1.750	1.234-2.481	0.002
Alternate self-identification	9 (81.8)	2 (18.2)			1.238	0.222-6.912	0.808
Sexual orientation			5.282	0.022			
Homosexuality	160 (79.6)	41 (20.4)			Ref.		
Heterosexuality	1079 (85.8)	178 (14.2)			0.771	0.494-1.204	0.254
Race/Ethnicity			2.842	0.585			0.328
Latinx	62 (82.7)	13 (17.3)			Ref.		
Non-Latinx White	1030 (85.1)	180 (14.9)			0.819	0.393-1.707	0.593
Non-Latinx Black	33 (80.5)	8 (19.5)			2.228	0.684-7.255	0.184
Non-Latinx Asian	44 (91.7)	4 (8.3)			0.562	0.148-2.136	0.398
Non-Latinx Others	70 (83.3)	14 (16.7)			0.884	0.332-2.349	0.804

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Veteran			2.546	0.111			
No	1189 (84.7)	215 (15.3)			Ref.		
Yes	50 (92.6)	4 (7.4)			0.623	0.182-2.132	0.451
Frequencies of exposure to SHS			0.595	0.743			0.177
Every day or most days	719 (85.6)	121 (14.4)			Ref.		
Some days	463 (84.2)	87 (15.8)			1.226	0.852-1.763	0.273
Never	57 (83.8)	11 (16.2)			2.092	0.912-4.801	0.082
Ashtrays or receptacles			2.602	0.272			0.305
Seen	699 (84.4)	129 (15.6)			Ref.		
Not seen	27 (77.1)	8 (22.9)			1.476	0.553-3.940	0.437
Not sure	513 (86.2)	82 (13.8)			0.804	0.562-1.151	0.234
No smoking signs			5.389	0.02			
Not seen	474 (82.3)	102 (17.7)			Ref.		
Seen	765 (86.7)	117 (13.3)			0.797	0.551-1.152	0.228
Current tobacco use			29.617	<0.001			
No	1230 (85.6)	207 (14.4)			Ref.		
Yes	9 (42.9)	12 (57.1)			4.304	1.501-12.341	0.007
Awareness of campus smoking policy			0.896	0.344			
No	335 (83.5)	66 (16.5)			Ref.		
Yes	904 (85.5)	153 (14.5)			1.094	0.736-1.625	0.658
Perception of harmfulness of ENDS			222.978	<0.001			<0.001
Less harmful	458 (69.6)	200 (30.4)			Ref.		
About the same	618 (98.3)	11 (1.7)			0.059	0.031-0.110	<0.001
More harmful	163 (95.3)	8 (4.7)			0.172	0.081-0.367	<0.001
Perception of harmfulness of SHS	8.948 (1.367)	8.1 (1.787)	6.686	<0.001	0.853	0.767-0.948	0.003

SD, Standard deviation; CI, Confidence interval

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Figure 1. Bar charts of statistically significant variables in the logistic regression model

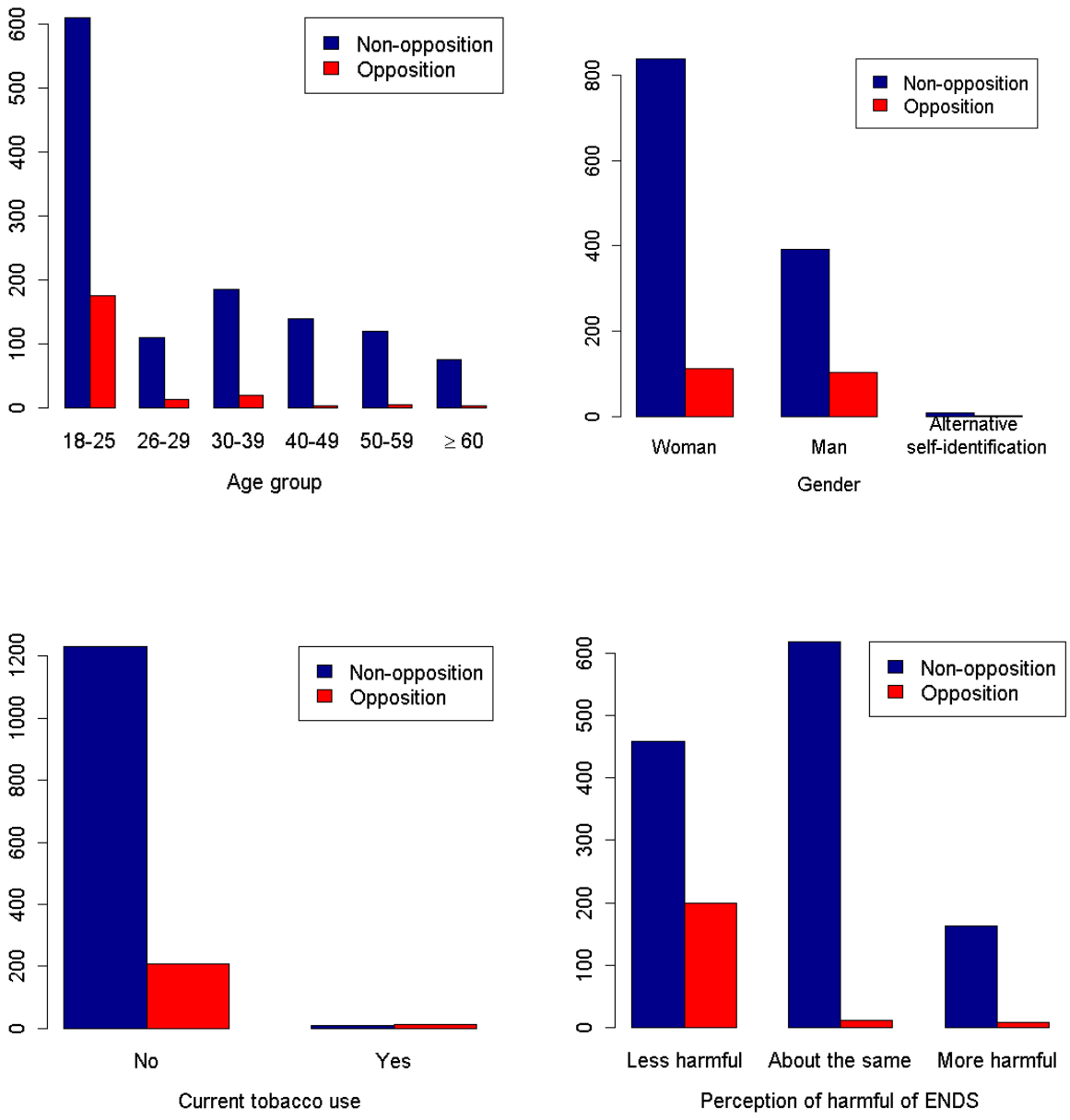

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Table 3. Multiple comparisons

		OR	Adjusted p-value
Age	50-59 years vs ≥ 60 years	1.023	1
	40-49 years vs ≥ 60 years	0.742	0.999
	30-39 years vs ≥ 60 years	2.149	0.862
	26-29 years vs ≥ 60 years	2.639	0.732
	18-25 years vs ≥ 60 years	5.240	0.101
	40-49 years vs 50-59 years	0.725	0.998
	30-39 years vs 50-59 years	2.100	0.737
	26-29 years vs 50-59 years	2.579	0.566
	18-25 years vs 50-59 years	5.121	**0.014**
	30-39 years vs 40-49 years	2.895	0.562
	26-29 years vs 40-49 years	3.555	0.415
	18-25 years vs 40-49 years	7.061	**0.018**
	26-29 years vs 30-39 years	1.228	0.996
	18-25 years vs 30-39 years	2.439	**0.023**
	18-25 years vs 26-29 years	1.986	0.333
Gender	Man vs Woman	1.750	**0.004**
	Alternate self-identification vs Woman	1.238	0.965
	Alternate self-identification vs Man	0.707	0.911
Perception of harmfulness of ENDS	About the same vs Less harmful	0.059	**<0.001**
	More harmful vs Less harmful	0.172	**<0.001**
	More harmful vs About the same	2.945	0.061

More specifically, the odds of being in the opposition group to the vape-free policy among participants aged 18-25 were 5.2 times higher than those 60 or older. The odds of being in the opposition group among male participants were 1.7 times higher than those in female participants. The odds of being in the opposition group among current tobacco users were 4.3 times higher than those in non-users. The odds of opposing the vape-free policy among those who answered, "about the same" and "more harmful" for the perceived harmfulness of ENDS compared to those who answered "less harmful" were 0.059 and 0.172, respectively. As the participants perceived ENDS more harmful, the odds of opposition to the vape-free policy decreased. The odds ratio of perceived harmfulness of SHS predicting opposition to the vape-free policy was 0.853, which indicates that the odds of opposing the vape-free policy decreased as they perceived SHS more harmful.

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Discussion

The Surgeon General definitively concluded that any kind of tobacco use or exposure to tobacco is significantly hazardous to health (U.S. Department of Health and Human Services, 2014). Recently, ENDS have become the most popular form of tobacco products among youths and young adults in America. As ENDS deliver nicotine derived from tobacco, they are considered a tobacco product by the U.S. Food & Drug Administration (2019). Although evidence about the long-term health effects of ENDS is limited compared to that of traditional combustible tobacco products, researchers have confirmed that ENDS pose significant health risks (U.S. Department of Health and Human Services, 2016). Therefore, vape-free policies should be considered in efforts to control tobacco use on campus.

The multiple analysis model (Table 2) indicated that age, gender, current tobacco use, perceived harmfulness of ENDS, and perceived harmfulness of SHS were significantly associated with opposition to the vape-free campus policy among those who otherwise supported a tobacco-free campus policy. Because ENDS are categorized as tobacco products, the "comprehensive tobacco-free policy" in our survey was meant to include the restriction of ENDS. Surprisingly, a considerable proportion (15.1%) of the study participants reported being opposed to the vape-free campus policy even though they reported supporting the comprehensive tobacco-free campus policy in the survey. This finding suggests that many people do not consider ENDS to be tobacco products. This misconception may come from misinformed beliefs and norms around ENDS. For example, adolescents and young adults who use JUULs often fail to recognize that they contain nicotine and many refer to their devices specifically as JUULs rather than e-cigarettes (Willett et al., 2019). Moreover, a belief that vaporization from ENDS is pure and unharmful may contribute to misconceptions about ENDS (Harding, 2014). These beliefs may in part be driven by exposure to social media promotions for e-cigarettes, which have often portrayed ENDS as safer and as healthier than conventional cigarettes (McCausland et al., 2019). Exposure to ENDS materials on social media has also been shown to be associated with greater ENDS use (Pokhrel et al., 2018). Given the prevalence of misinformation about ENDS, the participants may have failed to recognize how ENDS use would be affected by the enforcement of a comprehensive tobacco-free policy. Beliefs may also have been shaped by prior exposure to tobacco-free policies in other locations, as a variety of dimensions exist in campus tobacco control policies. For example, policies depend on the definition of tobacco products (e.g., smokeless tobacco, ENDS, hookah), the affected areas (e.g., indoors, outdoors, inside vehicles, a certain distance from buildings), and situations (e.g., religious ceremonies, research purposes) (American Nonsmokers' Rights Foundation, n.d.; Heath et al., 2016).

The American College Health Association (2012) has endorsed comprehensive tobacco-free policies, stating that building tobacco-free environments on campus can result in significant decreases in the number of tobacco users, the quantity of tobacco products used, and the

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exposure of non-tobacco users to passive tobacco use. To enact comprehensive tobacco-free campus policies that include ENDS restrictions, college administrators, health professionals, and policy makers need to understand the key factors related to opposition to new policies found in this study.

The logistic regression model (Table 2) showed that participants who perceived ENDS as less harmful than traditional cigarettes were more likely to oppose the vape-free policy compared to those who perceived ENDS as more harmful and those who perceived ENDS and cigarettes as equally harmful. The model also confirmed that respondents who perceived SHS less harmful were more likely to oppose the vape-free policy. Thus, opponents of the policy may have had lower sensitivity to the dangers of ENDS, SHS, and cigarettes. Perception and knowledge of general tobacco use in campus populations are closely associated with support for or opposition to vape-free policies. This aligns with the recent literature reporting that today's younger generations tend to consider ENDS less harmful and more acceptable than traditional tobacco products (Jongenelis et al., 2019; Leavens et al., 2019; Nicksic, et al., 2019). These widely prevalent beliefs about ENDS necessitate raising awareness in regards to ENDS through public health education and campaigns.

Our final analytic model showed that current tobacco use status was a strong predictive factor for the vape-free policy opposition on campus. Participants who used any tobacco products were not in favor of the vape-free policy. As we did not specify the kinds of products used, we were not able to examine differences related to the effects of each tobacco product. However, it is reasonable to think that current tobacco users do not think favorably about tobacco restriction policies. Previous research also supports this finding (Braverman et al., 2017; Cooper et al., 2016).

In our sample, 18-25-year-olds were nearly five times more likely to oppose the vape-free policy than respondents aged 60 or older. This odds ratio was even higher than that of current tobacco use in the model. The finding that younger adults were not in favor of the comprehensive tobacco-free policy (including vape restrictions) is consistent with findings from Braverman et al.'s study (2017). As mentioned above, ENDS use has become socially acceptable among young adults. In addition to perceptions of whether ENDS are tobacco and/or harmful, there is a possibility that young people do not believe the damaging consequences of vaping and exposure to vaporization will happen to them (Passanisi et al., 2017). Young adults and adolescents are prone to make poor decisions in terms of health behavior (Gwon & Jeong, 2018), and engage in risky or impulsive behaviors (Defoe et al., 2015; Scott-Parker et al., 2017). In this study, male campus participants reported more opposition to the vape-free policy than female and other than male and female counterparts. This difference in gender effect was in accordance with prior research (Braverman et al., 2017; Cooper et al., 2016; Thomson et al., 2016).

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The variables of sexual orientation (heterosexuality vs. homosexuality) and "no smoking" signs (not seen vs. seen) were significant in bivariate association but not in logistic regression (Table 2) due to the controlling effect of other variables in the regression analysis. In other words, sexual orientation and "no smoking" signs correlated with other characteristics of the sample, and these two variables were explained by other variables instead. Numerous studies have documented disparities (higher prevalence) in tobacco use rates among LGBTQ groups compared to non-LGBTQ populations (Kann et al., 2016; Lee et al., 2009). The effect of heterosexual orientation may have been hidden by current tobacco use status in the model. Individuals who had not seen "no smoking" signs were more open to vaping on campus in bivariate analysis, possibly because opponents paid less attention to these enforcement signs. However, this variable was not significant in logistic regression because of the controlling effect of other variables.

Findings from this paper can be useful for informing policy makers and community partners of effective practices to reduce the use of ENDS among college students who may be influenced by perception and social and environmental factors (Cheney et al., 2018). The inadequate level of knowledge about ENDS products and their health effects may cloud the decision-making process, which leads to experimental and, eventually, regular use of ENDS on campuses. A study in North Dakota showed that four in ten college students did not know whether ENDS use was prohibited on campus (Braverman et al., 2016). Given the dramatically increased availability of ENDS products and rise of ENDS advertisements in college communities (Wagoner et al., 2014), initiating anti-ENDS campaigns to promote tobacco-free campus policies is crucial. In 2017, Arkansas and Illinois mandated a smoke-free campus policy (including ENDS) for public institutions; Iowa has even extended this to private institutions (Wang et al., 2018). Although Wisconsin, where this study was conducted, enacted a smoke-free law prohibiting smoking in workplaces, restaurants, and bars in 2010 (Centers for Disease Control and Prevention, 2020), there have been no state-wide smoking and vaping restrictions on campuses. Further, state preemption has prevented localities from regulating advertising, licensure, or youth access for tobacco products (Centers for Disease Control and Prevention, 2018), and the state does not consider e-cigarettes as "tobacco products" in its statutes (Public Health Law Center, 2020). Thus, state policy may have influenced the opposition to the adoption of the vape-free campuses in the state. In addition, while Wisconsin's smoking rate is close to national average and the state is not a major tobacco producer, its adult vaping rate is among the top ten in the U.S. (Hu et al., 2019) and the percentage of Wisconsin high school students had increased from 8% in 2014 to 20% in 2018 (Wisconsin Department of Health Services, 2019). As a result, participants may view vaping as more normative than in other Midwestern states with lower vaping rates.

Future research is warranted to investigate the impact of this policy on the prevention of ENDS use and exposure to ENDS products among college students. Developing tailored communication strategies that target groups opposing vape restriction, including males, who

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predominantly use ENDS products more than females, and current tobacco users who use ENDS as a substitute, is also important in gaining their support for a comprehensive tobacco-free campus policy, coupled with a potential educational role for parents (Cheney, et al., 2018). This will gradually shape social norms and, in the long run, decrease ENDS use and exposure to secondhand vape among young adults in higher education.

Limitations and Strengths

Although this study provided important findings for successful adaptation of vape-free policies on college campuses, it includes several limitations. First, the survey results were subject to response bias because this campus-wide online survey was self-reported with a possibility that participants answered untruthfully or misleadingly on the survey questionnaire. For example, they may have felt pressure to give answers that were more socially acceptable, but the anonymity of the survey may have decreased this concern. Second, this survey was conducted on one university campus in Wisconsin, and the results may not be widely generalizable. Third, we were not able to include more questions and answers that may have been useful for analysis. For example, types of tobacco products used may have affected opposition to the vape-free policy. Additional answers such as lesbian, gay, asexual, bisexual, queer, polysexual, and pansexual for sexual orientation (American Psychological Association, 2019) would provide more detailed information about association with opposition to the policy. We did not consider different answer options for gender other than man, woman, and alternate self-identification, such as cisgender man, cisgender woman, transgender man, transgender woman, gender-nonconforming, genderqueer, gender-nonbinary, gender-creative, agender, and two-spirit (American Psychological Association, 2019). Lastly, the survey was implemented cross-sectionally, not allowing the examination of trajectories.

Multiple strengths of the current study should also be noted. First, the sample size was significantly large. Second, this survey included a set of comprehensive variables in the analytic models that prior research did not, including sexual orientation, veteran status, frequency of SHS, environmental scan factors, awareness of existing smoking policy, and perception of the harmfulness of ENDS and SHS. Third, we included various confounding factors, such as demographics, environmental factors, awareness, and perception in the analytic models to examine the factors associated with opposition to vape-free campus policy which previous researchers did not consider. Fourth, our findings are novel in that comprehensive tobacco-free campus policy supporters can be opposed to the adoption of vape-free campus policy probably due to their misconception and misbelief about ENDS.

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Conclusion

In this study, we investigated factors associated with opposition to vape-free campus policies among those who supported a tobacco-free policy based on a campus-wide survey of a university in Wisconsin. College administrators, health professionals, tobacco-free campus taskforce teams, and policymakers need to consider the significant demographic factors that prompt opposition to these policies (younger age, male, and current tobacco user), targeting populations in campus health campaigns and community outreach programs for more support. Notably, altering perceptions of the harmfulness of ENDS and SHS can be important steps toward vape-free campuses. There is a need to use informative approaches to improve knowledge of overall tobacco use, ENDS, and the harmful effects of ENDS in public health programs on campus. Because this study was conducted in only one campus, surveying a larger sample from multiple institutions (similar in size and demographics to the university the survey was administered) in the future will be helpful to compare the factors associated with opposition to vape-free campus policies and learn what, if anything, has been effective in making campuses more smoke and vape free. Additional research is required to examine the effect of campus campaigns and programs for a better understanding of ENDS and the support for or opposition to comprehensive tobacco-free and vape-free campus policies.

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