

**Effects of A Business Management Course on Child Care Providers' Outcomes:
A Randomized Controlled Trial**

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Abstract

The COVID-19 pandemic has exacerbated child care shortages. To ensure a strong supply of high-quality early care and education (ECE) programs for all children and families, supporting the business functions of ECE programs can be an effective strategy. Using a randomized controlled trial (RCT), this study evaluated the effectiveness of a business management course (BMC) for ECE providers serving underserved communities. Half the sample was randomly assigned to the BMC intervention group and received a 14-week training. After controlling for the pre-test scores, perceived business management skills and confidence in business practices were higher among the BMC participants than those in the control group. This study provides insights into efforts to improve the sustainability of ECE programs.

Keywords: business management, leadership, child care provider, professional development, equity-focused research, randomized control trial

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Introduction

Access to affordable and high-quality early care and education (ECE) can support parental employment and children's early learning and development (Banghart et al., 2021). Given the importance of ECE programs in the lives of children and families, it is concerning that children in underserved communities often face inequitable access to high-quality ECE programs (Davis et al., 2019). One strategy to promote these children's equitable access to early education opportunities may be by improving the business practices of ECE providers, especially those serving children and families in underserved communities (Author et al., 2020). Equipping ECE providers with business knowledge and skills would likely improve the quality and sustainability of child care businesses, making high-quality ECE programs available and accessible to all children and families (Grosso et al., 2021).

However, supporting the business success or sustainability of ECE programs is rarely a top priority in professional development and quality improvement interventions, even though the fragility of ECE providers' financial conditions is one of the primary reasons for the permanent closing of many ECE programs (Stoney & Blank, 2011). Based on theoretical insights and empirical findings related to the sustainability of ECE programs, the present study evaluated the effectiveness of a business management course (BMC) intervention. Using a randomized controlled trial (RCT), we examined whether the BMC can enhance ECE providers' business management skills, confidence in business practices, access to business support, and leadership efficacy.

Child Care Shortage and Systemic Inequities

For the past two decades, the number of licensed or regulated family child care or small center providers has been shrinking (Bromer et al., 2021). The child care shortage in the United States may be especially challenging for children and families from historically marginalized and underserved communities. Studies have shown that the child care shortage is more prevalent in communities of color, immigrant communities, communities in areas of concentrated poverty, and rural communities (Jessen-Howard et al., 2018). Parents of infants, a child with a disability, and those with nontraditional hour jobs, also face a greater difficulty finding child care that meets their needs (Malik et al., 2018; Sipple et al., 2020).

Furthermore, the COVID-19 pandemic has exacerbated child care shortages, leaving these families scrambling to find child care spots (Malik et al., 2020). Compared to ECE programs in the middle- to upper-middle-income communities, a greater proportion of ECE programs in underserved communities have been closed permanently (Adams, Ewen, & Luetmer, 2021). The economic challenges driven by the pandemic have disproportionately affected ECE providers who are people of color and from immigrant communities, live in underserved communities, and support children and families in these communities (Bromer et al., 2021). The disproportionality reflects systemic inequities embedded in ECE policies and regulations. The intersection of the pandemic with the systemic inequities may have caused even greater harm to ECE providers who are women of color, from immigrant backgrounds, and live and serve in underserved communities (Andrews et al., 2019; Souto-Manning & Rabadi-Raol, 2018).

Equitable access to quality support and professional development opportunities for ECE providers can effectively address systemic inequities in ECE (Grosso et al., 2021). Given that many ECE providers in underserved communities experience greater sustainability challenges

(Bromer et al., 2021), helping them sustain and grow their businesses can increase equitable access to high-quality early education opportunities. Improving the sustainability of ECE programs can also lead to positive outcomes for children and families (Downer et al., 2016; Sipple et al., 2020).

Importantly, even though the tenuous financial model for ECE is one of the primary reasons for many ECE programs' permanent closing, considerably little attention has been devoted to supporting ECE providers' business knowledge and skills (Stoney & Blank, 2011). It has been surmised that business support, such as business skills training, financial management coaching, and technical support, can improve the sustainability of ECE programs by helping providers sustain their child care businesses (Porter & Bromer, 2020). However, there is a lack of empirical evidence to guide such efforts.

Improving the Business Side of ECE Programs

Stoney and Blank (2011) identified a list of business responsibilities for ECE providers. The responsibilities include keeping full enrollment, collecting fees, managing grants and contracts from funders, developing and managing budgets, enrolling in government programs (e.g., subsidies, food support programs), purchasing supplies and equipment, human resources, payroll, insurance access, facility maintenance, and many other tasks (Stoney & Blank, 2011). The sustainability of ECE programs, especially their financial health and stability, can directly affect child care providers' capacity to keep their business open and provide high-quality early education opportunities to children and families (Bromer & Korfmacher, 2017). Given the close link between the business side of ECE programs and sustainability, designing and delivering effective business management training can be an effective strategy for improving the sustainability of ECE programs (Grosso et al., 2021).

Indeed, achieving business sustainability is one of the great challenges in running ECE programs (New Venture Fund, 2018). Many child care providers face challenges, such as administration and paperwork, navigating regulatory and quality systems, monitoring enrollments to fill vacant slots, and accessing needed equipment or high-speed internet service (Author, 2018; Grosso et al., 2021; Porter et al., 2010). These challenges are likely to pose a significant problem in sustaining child care businesses. Furthermore, the sustainability challenges that child care providers face can hinder equitable access to high-quality ECE programs for all (Malik et al., 2018). Therefore, there is an urgency to build effective business training and support systems so that ECE providers can sustain and grow their businesses.

According to Stoney and Blank (2011), a generic, broad-brush approach to business training may not be useful for ECE providers. Instead, they proposed three elements of an effective training model: (a) training that is tailored to meet the needs of the trainees and their programs, (b) step-by-step hands-on and concrete tasks-based learning, and (c) ongoing technical assistance in real-time at post-training. Author and colleagues (2020) have provided evidence that these elements can contribute to effective business management interventions. Their pre- and post-test analyses showed that ECE providers demonstrated increased self-efficacy in business management skills after completing a business management course designed specifically for ECE child care owners. Their findings suggest that training focused on marketing, financial management, accounting, human resources, business planning, technology, leadership, and entrepreneurial innovation can effectively promote ECE providers' business knowledge and skills.

The Present Study

The Business Management Course (BMC), a 14-week child care business management intervention, is designed to promote ECE providers' business competencies, financial and operational effectiveness, and access to business tools and resources. Using a randomized controlled trial (RCT), this study examined whether the BMC participants demonstrated higher levels of business management skills, confidence in business practices, access to business support, and leadership efficacy than those in the control group. Previous research found benefits of this BMC intervention on ECE providers' business management skills and access to business tools and resources, such as using technology to help run their business, using marketing tools, creating a budget, and managing a budget (Author et al., 2020). In the current study, we extended this prior pilot study and tested the effectiveness of the BMC intervention by conducting a randomized controlled trial (RCT). In general, the RCT is advantageous for examining the effectiveness of interventions. This design enables researchers to compare the outcomes for those who received the intervention with those who did not, making it possible to attribute outcome differences between groups to the specific intervention (Sullivan, 2011).

Specifically, we examined whether the BMC intervention group had higher post-test scores on (a) business management skills, (b) confidence in business practices, (c) access to business support, and (d) leadership efficacy compared to the control group. We hypothesized that the BMC participants would demonstrate higher business management skills, confidence in business practices, access to business support, and leadership efficacy than those in the control group after controlling for prior scores on the same measures.

Method

Participants and Recruitment

Study participants consisted of 56 child care providers serving children and families from high-poverty communities in a northeastern state. Our sample size (28 participants per condition) was adequate to detect the significant program effect at a power of .80. Participants were recruited through email outreach using the state's list of licensed providers. Given the focus of the BMC on improving the business functions of ECE programs in underserved communities, we emailed child care providers from this list who were operating in low-income neighborhoods in the geographic community. In addition, graduates of the BMC were invited to share the recruitment information with other providers in their local networks. Eligibility for participation was limited to ECE programs that meet at least one of the following conditions: (a) served low-income communities; (b) operated in areas known for having a short supply of ECE services; (c) over 50% of enrollment are children of color; (d) struggled with managing their business and maintaining program quality, and e) had not previously participated in a prior version of the BMC. All potential participants were required to attend an in-person screening interview to ensure they were eligible and committed to participating in the study. Participants meeting the criteria were randomly assigned to either the BMC intervention or waitlist control groups. A waitlist RCT design is advantageous in promoting greater participant enrollment and retention than a traditional RCT (Shadish et al., 2002). Four strategies were applied to promote enrollment and retention: (a) content knowledge and resources provided were closely relevant to the participants' needs; (b) treatment groups received electronic equipment and course materials free of charge to support their learning and business operation; (c) all participants received an honorarium (\$20) for each wave of data collection; (d) the control group received the BMC intervention upon study completion.

Table 2 shows the demographic and professional characteristics of the study participants. The average age of our study participants was 50.94 years old ($SD = 10.47$), and all were females from diverse backgrounds. The racial/ethnic composition of the sample was 68% Hispanic/Latinx, 26% Black, 2% Asian, 2% Native American, and 2% other races. Also, 68.6% of participants reported that they speak languages other than English. Thirty-one percent of our sample completed some college but no degree, 23.5% completed high school, 17.6% had an associate degree, 13.7% had a bachelor's degree, and 9.7% had higher than a bachelor's degree. The average teaching years in the ECE field was 14.19 years ($SD = 12.92$). In our sample, 73.2% had a family child care license, 19.5% had a large group and school-age child care license, and 7.3% had a small group and school-age child care license. The average number of children enrolled in participants' ECE programs was 7.58 ($SD = 5.18$).

Business Management Course (BMC) Intervention

The primary goal of the BMC was to promote ECE programs' business and operational effectiveness by increasing providers' business competencies and access to resources (i.e., technology, shared services, and ongoing business coaching). This 30-hour curriculum was delivered primarily online via video conferencing.

During the 14-week BMC intervention, participants were provided with professional development and technical assistance on various topics, including marketing, financial management, accounting, human resources, business planning technology, leadership, innovation, and shared services innovations (see Table 1). For example, participants in the BMC intervention group learned how to use the Business Administration Scale (BAS; Talan & Bloom, 2018) and the Program Administration Scale (PAS; Talan & Bloom, 2021). BAS is an instrument to measure the overall quality of business and professional practices of family child

care settings. PAS is an instrument to measure the leadership and management practices of center-based programs. Also, through collaboration with the community-based technology-access nonprofit organization, the intervention group received a new tablet computer and training on how to use it for business and administrative operations

Data Collection

Both the BMC and control groups participated in the pre-intervention and post-intervention data collection. Participants in the BMC intervention and control groups completed self-report questionnaires regarding their business management skills, confidence in business practices, access to business support, and leadership efficacy. Pre-intervention data were collected in February 2020, and post-intervention data were collected upon completing the BMC intervention. Participants' demographic, professional, and ECE workplace characteristics were collected at the pre-intervention stage.

Measures

Outcome measures include participants' perceived business management skills, confidence in business practices, access to business support, and leadership efficacy. These outcome measures were collected twice at the pre-intervention and the post-intervention stages.

Business Management Skills

Business management skills were measured using six items developed by the research team. This scale was designed to assess participants' strategic planning skills, financial and budgeting skills, and ability to develop networks and contacts. Example items include "*Do you currently have a business plan?*", "*Have you implemented your budget?*" and "*Are you part of a family child care system/network?*" with a "yes" (coded as 1) or "no" (coded as 0) answers. Items were averaged to create a mean scale score ($\alpha_{pre} = .74$, $\alpha_{post} = .77$).

Confidence in Business practices

Participants' confidence in business practices was measured using five items. Participants reported how confident they feel about a set of business practices on a 1-10 scale (1 = *not at all confident* to 10 = *extremely confident*). Listed business practices include (a) managing my business, (b) using technology to help run my business, (c) using marketing tools, (d) creating a budget, and (e) managing a budget. Items were averaged to form a composite indicator of participants' confidence levels ($\alpha_{pre} = .84$, $\alpha_{post} = .90$), with higher scores indicating higher confidence levels.

Access to Business Support

ECE providers' access to business support was measured using six self-reported items. Participants reported whether they have support to improve their business from people such as licensors, business coaches, and other providers (1 = *yes* and 0 = *no*). A composite variable was created by averaging all items. Higher scores denote higher levels of access to business support ($\alpha_{pre} = .74$, $\alpha_{post} = .69$).

Leadership Efficacy

The leadership efficacy scale consisted of 11 items assessing participants' perceptions of themselves as leaders/change agents and their perceived ability to mobilize information, resources, and support to get things done in their work settings. Example items include "I can lead changes in early education and care," "I have the ability to form a new partnership or professional alliance to support my leadership/entrepreneurship," and "I have the ability to identify a set of steps to implement a plan for improvement or change." Responses were rated on a scale that ranged from 1(not at all) to 10 (a lot) and then averaged. Higher scores indicate higher leadership efficacy ($\alpha_{pre} = .97$, $\alpha_{post} = .97$).

Data analyses

We first compared baseline differences between the BMC and control groups regarding demographic, professional, and workplace characteristics. We used t-tests for continuous variables and chi-square tests of independence for categorical variables. Next, we checked whether our variables of interest met the analysis of covariance (ANCOVA) assumptions, namely linearity between covariate and outcome variables, homogeneity of regression slopes, normality of residuals, and homogeneity of variances. Then, we used ANCOVA to evaluate the effectiveness of the BMC. In the analyses, the outcome measured at the pre-intervention was entered first as a covariate and then the grouping variable (1 = *intervention group* and 0 = *control group*). Significance in the grouping variable would indicate significant differences in post-intervention scores between the BMC and control groups. Generalized eta squared (η^2_g) was used for the effect size statistics. η^2_g is preferred to eta squared, and partial eta squared because it provides comparability across between-subjects and within-subjects design (Bakeman, 2005). All data analyses were done using R (R Core Team, 2020).

Results

Baseline Differences

Differences between the BMC intervention and control groups were examined based on demographic and workplace characteristics. Demographic characteristics include participants' age, gender, non-English speaking, educational attainment, and race/ethnicity. Workplace characteristics include license type, license capacity, QRIS participation, the number of years in the ECE business, number of paid employees, number of enrolled children, number of open slots, and income from tuition and other sources. Table 2 shows demographic characteristics between the two groups and Table 3 shows providers' ECE workplace characteristics. *T*-tests and chi-

square test indicated that the BMC intervention and control groups did not differ by demographic workplace characteristics. Furthermore, there were no differences in the outcome measures at pre-intervention between the BMC intervention and control groups.

Program Effectiveness

All variables conformed to the assumptions of ANCOVA. Using ANCOVA, we tested whether participants' business management skills, confidence in business practices, access to business support, and leadership efficacy at post-intervention differed between the BMC intervention and control groups. Regarding the business management skills, there was a statistically significant difference in post-intervention score between the BMC and control groups: $F(1, 33) = 12.1, p = 0.001, \eta^2_g = 0.27$. As illustrated in Figure 1A, those in the BMC intervention ($M_{\text{adjusted}} = 0.64, SE = 0.06$) demonstrated significantly higher business management skills than those in the control group ($M_{\text{adjusted}} = 0.31, SE = 0.08$). Also, participants' confidence in business practices at post-intervention differed between the intervention and control groups: $F(1, 30) = 7.77, p = 0.009, \eta^2_g = 0.21$. Figure 2 illustrates that the estimated marginal means were significantly higher for those in the BMC ($M_{\text{adjusted}} = 6.25, SE = 0.37$) than the control group ($M_{\text{adjusted}} = 4.59, SE = 0.46$). However, no significant group differences were found regarding participants' access to business support and leadership efficacy.

Discussion

This RCT study aimed to evaluate the effects of a business management program on ECE providers' business management skills, confidence in business practices, access to business support, and leadership efficacy. To our knowledge, the present study is the first RCT study to test the effectiveness of business training specific to the ECE context. It is important to empower ECE providers with business and administrative skills to avoid shutting down. Such efforts can

contribute to reducing the decline in the child care supply and increasing access to high-quality ECE programs (Grosso et al., 2021; Stoney & Blank, 2011). This is even more important than ever due to the impact of the COVID-19 pandemic on the supply of child care (Malik et al., 2020).

Overall, the results showed the effectiveness of the BMC on ECE providers' perceived business management skills and confidence in business practices. Specifically, the BMC participants demonstrated higher business management skills than those in the control group. Their perceived business management skills (e.g., implementing a budget and implementing a business plan) were twice as high as the control group. The BMC participants also reported higher confidence in business practices (e.g., using technology and marketing tools). Consistent with previous findings (Author et al., 2020), the present study provided evidence that business training can effectively promote ECE providers' business competencies and self-efficacy.

However, participants' access to business support and leadership efficacy did not vary between the BMC and control groups. One plausible explanation is that gaining access to business support systems and developing leadership may take longer than the 14-week window. Indeed, in our sample, the BMC intervention group demonstrated slightly higher scores on their perceived access levels to business support and leadership efficacy at post-intervention, but the difference was not statistically significant. Therefore, it would be important to examine the long-term effects of the current intervention on ECE business management and leadership efficacy development in future research. Another explanation might be that the learning activities of the BMC intervention appeared more closely tied to business knowledge and skills than leadership. Strengthening the leadership aspect of the BMC intervention could potentially be a useful additional component to derive more benefits to ECE providers.

Together, the present study provides insights into effective strategies to engage ECE providers in business quality improvement and access to business supports. Our intervention program placed great emphasis on (a) need-based, practical guidance, (b) hand-on activities, and (c) access to business tools and resources. Our study findings suggest that these three elements are likely to lead to positive changes in ECE providers' practices. Stakeholders should leverage the use of business training like the BMC as systematic support to promote long-term sustainability of ECE programs.

Limitations and Future Directions

This study has limitations to be considered. First, there is a need for follow-up of the intervention to assess the long-term effects on the ECE programs. Our RCT study was suitable for measuring the immediate short-term effects on ECE providers upon completing the intervention. However, a question remains about the long-term effects of the intervention on providers' practices (e.g., financial management, marketing, engagement in ECE policies and regulation, access to initiatives, and supports). It is plausible that the intervention will produce a delayed positive effect on ECE providers' practices and business sustainability in the long term. Lastly, measurement limitations might have obscured the effects of the intervention. Although the internal consistency of our measures was acceptable, our ability to detect the true effectiveness of this intervention might have been limited by our study measures.

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Table 1

Key Learning Activities of the Business Management Course

Sessions	Learning objectives	Course activities
1	Orientation	<ul style="list-style-type: none"> ▪ Course objective overview ▪ Computer practices ▪ Business administration and program administration scales ▪ Marketing, financial management, business planning ▪ Entrepreneurial leadership
2	QRIS, basic computer literacy	<ul style="list-style-type: none"> ▪ MA early education and care online resources ▪ Quality Rating System Professional Qualifications registry ▪ Online document & task management tools ▪ The use of online banking resources; research local banks ▪ Tax policy
3	Computer skills, finance management	<ul style="list-style-type: none"> ▪ Creating and using email accounts to support small business ▪ Online tools for finance management ▪ Business Administration Scale-Fiscal management tools ▪ Gaining financial control of a small business
4	Using marketing tools to support enrollment	<ul style="list-style-type: none"> ▪ Innovative marketing strategies ▪ Using social media as a marketing tool ▪ Design of professional flyers ▪ Website development ▪ Marketing opportunities through the City of Boston
5	Business and budget plan	<ul style="list-style-type: none"> ▪ Assessing current business practices ▪ Registering as small businesses with the City of Boston ▪ Introduction to business models ▪ Creating and using a budget
6	Shared services	<ul style="list-style-type: none"> ▪ Overview of Shared Services resources and website ▪ Money saving opportunities ▪ Networking and bulk purchasing to save money

Table 2

Demographic Characteristics of Study Participants

Variables	Total (N = 56)		Control (n = 28)		Intervention (n = 28)		t or χ^2
	M	(SD)	M	(SD)	M	(SD)	
Age	50.94	(10.47)	52.65	(10.02)	49.36	(10.83)	1.09
Female, %	100.0		100.0		100.0		—
Non-English speakers, %	68.6		76.0		61.5		0.66
Educational attainment, %							
High School diploma or less	27.4		37.5		18.5		1.50
Some college but no degree	31.4		29.2		33.3		0.00
Associate degree	17.6		8.3		25.9		1.63
Bachelor's degree	13.7		16.7		11.1		0.02
Higher than a bachelor's degree	9.8		8.3		11.1		0.00
Race/ethnicity, %							
White	0.00		0.00		0.00		—
Black	26.0		16.0		36.0		1.66
Hispanic/Latinx	68.0		76.0		60.0		0.83
Asian	2.0		0.00		4.0		0.00
Other races	4.0		8.0		0.00		0.00

Note. The *t*-test and chi-square comparisons showed no statistically significant differences between the BMC and control groups.

Table 3

Workplace Characteristics of Study Participants

Variables	Total (<i>N</i> = 56)		Control (<i>n</i> = 28)		Intervention (<i>n</i> = 28)		<i>t</i> or χ^2
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	
License type, %							
Family child care	73.2		77.8		69.6		0.05
Small group and school age child care	7.3		5.6		8.7		0.00
Large group and school age child care	19.5		16.7		21.7		0.00
Licensed capacity	11.94	(8.88)	10.84	(7.32)	13.00	(10.19)	-0.87
Participating QRIS, %	93.5		95.7		91.3		0.00
Level 1	23.4		30.4		16.7		0.00
Level 2	74.5		65.2		83.3		1.19
Level 3	2.1		4.3		0.00		0.00
Level 4	0.00		0.00		0.00		—
The number of years in ECE business	12.90	(7.42)	12.52	(6.65)	13.27	(8.21)	-0.36
The number of paid employees	2.06	(2.53)	1.57	(1.85)	2.50	(2.97)	-1.34
The number of enrolled children	7.58	(5.18)	7.28	(4.92)	7.85	(5.50)	-0.40
The number of open slots	3.18	(4.29)	3.00	(5.52)	3.35	(2.91)	-0.27
Income from tuition and other sources	70,700	(45,700)	72,900	(47,600)	68,400	(45,700)	0.23

Note. The *t*-test and chi-square comparisons showed no statistically significant differences between the BMC and control groups.

Table 4

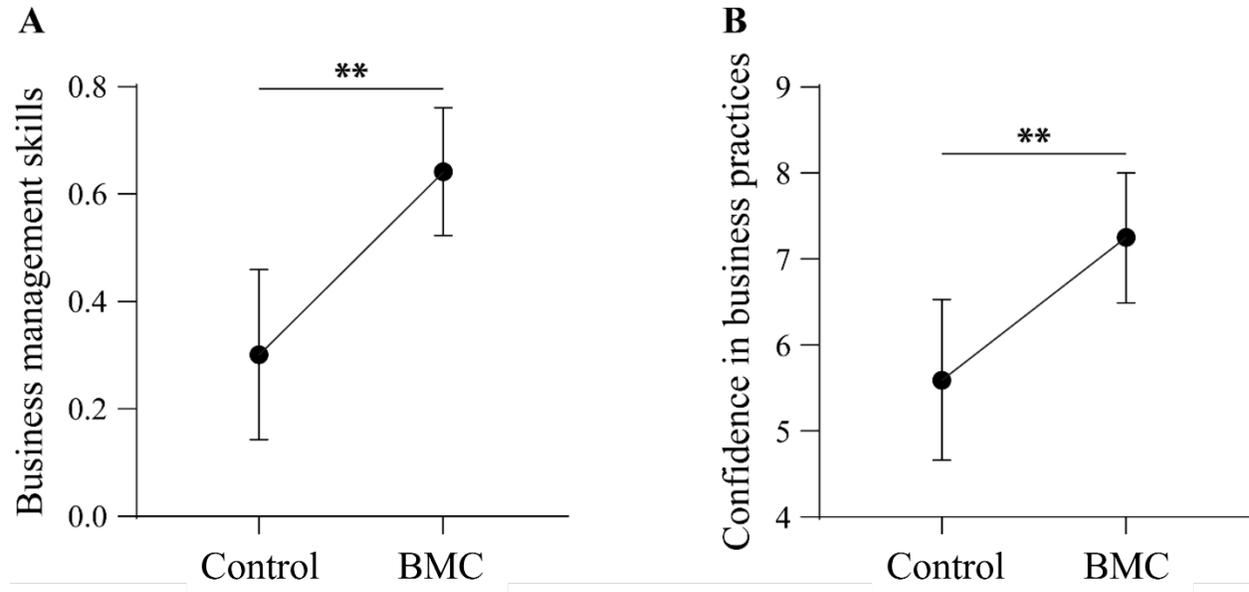
Summary Statistics for Pretest and Posttest Measures

Measures	Pretest				Posttest			
	Control		Intervention		Control		Intervention	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Business management skills ^a	0.38	(0.29)	0.41	(0.31)	0.34	(0.30)	0.66	(0.30)
Confidence in business practices ^b	4.80	(1.86)	4.63	(1.58)	4.64	(2.17)	6.19	(1.61)
Access to business support ^c	0.37	(0.42)	0.54	(0.34)	0.46	(0.29)	0.65	(0.29)
Leadership efficacy ^d	6.09	(1.71)	6.37	(1.79)	7.28	(1.98)	8.12	(1.60)

Note. ^aMean of 6 binary variables (0 = no, 1 = yes). ^bMean of 5 items rated 0 (none) to 9 (a lot). ^cMean of 6 binary variables (0 = no, 1 = yes). ^dMean of 11 items rated 0 (none) to 9 (a lot).

Figure 1

Post-Intervention Differences Between the BMC and Control Groups



Note. Covariate-adjusted means are presented in Figures 1A and 1B.