

Building a cohort of mentor teachers to support novice teachers' implementation of positive behavior support, trauma-informed, and culturally-sustaining practices

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Abstract

A university was awarded a "Teacher Prep to Practice" grant from the Pennsylvania Department of Education for a project titled "Developing Culturally-Relevant Aspiring Teachers." The university collaborated with local school districts to host 2, 3-day "summer institute" professional development sessions, focusing on culturally relevant education, positive behavior support, trauma-informed practices, and effective coaching for novice teachers. The intention was to build a cohort of trained, veteran teachers equipped to serve as mentors for pre-service and early career educators. This paper provides an overview of the summer institute and shares the results of a related mixed-methods research study.

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Introduction

Effective teachers and a stable educator workforce are necessary for a high-quality education system (Darling-Hammond, 2000). Ongoing teacher shortages across the United States have sparked concerns about inadequate learning conditions and student underachievement (Berry & Shields, 2017). Additionally, difficult-to-staff school districts with higher populations of low-income and historically underrepresented students are at an even more significant disadvantage, facing severe disparities in teacher quality (Boyd et al., 2007). The growing early career teacher attrition rate, combined with the decline in individuals joining the profession, has led to a reliance on emergency teacher certifications, which has only exacerbated this systemic problem (Nguyen et al., 2022). There is an undeniable need to invest in comprehensive support for pre-service and early-career teachers through adequate preparation and high-quality mentoring (Sutcher et al., 2016).

A recent report from PA Needs Teachers and the National Center on Education and the Economy (2024) summarizes data on teacher shortages in Pennsylvania (PA), finding that state shortages and vacancies are at record-high levels. Many districts in PA rely on unprepared, emergency-certified teachers, creating a turnover cycle that negatively impacts student achievement and mental health (Boyce & Morton, 2024). The report points to several root causes of this crisis in PA, including recruitment challenges, unattractive working conditions, and teacher preparation experiences that do not give novices enough on-the-job clinical experience with support from highly effective mentor teachers. Recommendations to address systemic root causes of teacher shortages in PA include focusing on high-quality teacher preparation, including intentionally designed clinical experiences developed in partnership with local education agencies (Boyce & Morton, 2024).

There is an urgent need to boost and diversify enrollment in teacher preparation programs and ensure novice teachers can implement effective teaching strategies in their classrooms in PA. Constructive partnerships between high-quality mentor teachers, early-career teachers, pre-service teachers, and university supervisors can help advance new teachers'

understanding and utilization of research-based teaching practices critical to teacher and student success. These practices include positive behavior supports, trauma-informed practices, and culturally relevant and sustaining practices.

Effective Practices for Novice Teachers

Positive Behavior Interventions and Supports (PBIS) is an organizational framework that supports students' social, emotional, and behavioral growth (Sugai & Horner, 2006). Within a multi-tiered system of support, PBIS is designed to support all students by implementing proactive, evidence-based practices. Essential prevention-focused practices include maximizing school and classroom structure, explicit teaching of routines and procedures, actively supervising students, providing high levels of student engagement through opportunities to respond to instruction, and having a continuum of strategies to reinforce desired behaviors and a continuum of strategies to respond to inappropriate behavior (Simonsen et al., 2008). Research suggests that when practices are implemented with fidelity, PBIS improves outcomes for both teachers and students (McIntosh et al., 2021; Michael et al., 2023). This is particularly important for early career teachers who leave classrooms at higher rates than their more experienced colleagues (Redding & Henry, 2019). A focus on developing effective PBIS practices through pre-service teacher preparation and early career induction programs is vital for a lasting, successful teaching career.

In addition to the benefits novice teachers experience through the successful implementation of positive behavior support practices, research suggests that those equipped with the knowledge and skills to support students who have experienced trauma or Adverse Childhood Experiences (ACEs) are more likely to avoid burnout and early career attrition (Kim et al., 2021). According to the Centers for Disease Control and Prevention (CDC) (2021), ACEs include abuse (physical, emotional, and sexual), neglect (physical and emotional), and household dysfunction (substance abuse, mental illness, domestic violence, incarceration, and parental separation). Exposure to trauma and toxic stress is associated with decreased self-regulation and school performance in students, yet teachers report feeling unprepared to effectively support students who have experienced trauma (Thomas et al., 2019).

Building teachers' knowledge of the nature and impact of trauma and practices to support affected students is essential for creating a trauma-responsive environment (Thomas et al., 2019). Trauma-informed practices involve understanding and acknowledging the impact of trauma on children, responding effectively to their needs, and working to prevent re-traumatization by fostering a supportive school environment (Reddig & VanLone, 2022).

Culturally relevant-sustaining education (CR-SE) (Ladson-Billings, 1995; Paris & Alim, 2014) promotes an asset-based approach to education and pedagogical practices that focus on student's strengths, including their funds of knowledge (Moll et al., 1992). CR-SE competencies encompass the three propositions of culturally relevant pedagogy: academic success, cultural competence, and critical consciousness (Ladson-Billings, 2014). Teacher practitioners, especially novice teachers, need support to implement theories into practice effectively (Howard & Rodriguez-Minkoff, 2017). By adopting these teaching practices, novice teachers can be better prepared to serve the diverse population of students in schools and create equitable learning opportunities for all students (Brown-Jeffy & Cooper, 2011).

Effective Professional Development

Emerging from a meta-analysis of professional development (PD) for teachers (Darling-Hammond et al., 2017) are features positively correlated with teachers' retention and use of knowledge, which are conducive to students' learning. Specifically, researchers found that seven characteristics in 35 studies examining PD led to positive outcomes for developing teachers' knowledge and practice. Effective PD (1) is content-focused, (2) incorporates active learning using adult learning theory, (3) supports collaboration, (4) uses models and modeling of effective practice, (5) provides coaching and expert support, (6) offers opportunities for feedback and reflection, and (7) is of sustained duration (Darling-Hammond et al., 2017). To model effective pedagogy, veteran teachers must demonstrate how to be intentional about their impact on students' development through "metacognitive reflection" (Darling-Hammond et al., 2017, p.8). During each session of PD, teachers must engage with each other and build a sense of community that embraces

openness and honesty from feedback and reflection. Equally crucial for effective PD are access to adequate resources, a shared vision and direction for learning environments, and sufficient knowledge among facilitators (Darling-Hammond et al., 2017).

Purpose of Study

This research study is connected to a "Teacher Prep to Practice" grant, which was awarded to the Education Department at a university located in a rural area in central Pennsylvania for a project titled "Developing Culturally Relevant Aspiring Teachers" (DCRAT). As part of this grant, the university partnered with three local school districts to run two "summer institute" PD sessions for area public school teachers interested in serving as cooperating teachers to pre-service teachers or as a mentor to in-service early career teachers. We intended to build a cohort of trained, experienced mentor teachers who would know the critical practices taught in pre-service teacher preparation programs and understand how to best support and mentor these novice teachers. The PD focused on increasing teachers' knowledge, confidence, and use across four content areas, including (1) CR-SE practices, (2) positive behavior support practices, (3) trauma-informed practices, and (4) effective coaching and mentoring for novice teachers.

Given this unique PD opportunity for teachers, we wanted to learn about the experiences of participating teachers and the training outcomes. We hypothesized that participating in the summer institute would increase knowledge, confidence, and use across all four areas. We address the following research question through a pre-test-post-test survey: What is the impact of the summer institute training on teachers' knowledge, confidence in implementing, and use/ anticipated use of positive behavior support practices, trauma-informed practices, culturally sustaining pedagogy, and effective mentoring practices?

Method

Setting and Participants

The 3-day PD and research activities took place at a university located in central Pennsylvania. Teachers were recruited from three school districts located close to the university. Demographic data for each district is

described in Table 1. Following IRB approval, we explained the purpose and goals of the study at the start of the PD. Participation was voluntary, and 97.5% of those invited to participate opted to do so, and there was no attrition from pre- to post-test (n=38). Participants included elementary (95%), middle (21%), and high school teachers (26%). The participants identified as White (95%), Black (2.5%), and Multiracial (2.5%). One participant (2.5%) was in their early career, defined as the first three years of teaching. The remaining (97.5%) were veteran teachers with at least four years of experience.

Table 1

District Demographics

District	Student Race/ Ethnicity	Student Free/Reduced Lunch Eligible	Participating Teachers
District 1	White 74%	45%	N=18
	Hispanic: 15%		
	Black/ African American: 4%		
	Multiracial 7%		
District 2	White: 77%	24%	N=10
	Hispanic: 8%		
	Black/ African American: 5%		
	Multiracial: 6%		
District 3	Asian: 4%	56%	N=10
	White: 82%		
	Hispanic: 9%		
	Black/ African American: 4%		
	Multiracial: 5%		

Research Design

We used a mixed-methods pre-test-post-test design to address all research questions. This method allowed for a direct comparison of knowledge, confidence, and practice use across the four content areas. The quantitative component consists of scaled response items, allowing for statistical analysis, and the qualitative component includes open-ended survey items, allowing for exploration of patterns and themes in responses. This approach enabled us to use insights from quantitative responses to inform our interpretation of qualitative, open-ended response items and vice versa. Participants anonymously completed the surveys via Qualtrics at the start and end of the training.

Procedure

The 3-day summer institute training was offered twice during Summer 2023, and teachers received a stipend, meals, and ACT 48 credit for attending one of the ses-

sions. District administrators worked with the university team to recruit and select teachers to attend the training. Preference was given to teachers who had previously served or were interested in serving as a cooperating teacher for pre-service teachers or as a mentor for novices.

Content and activities focused broadly on four areas: positive behavior support practices, trauma-informed practices, CR-SE practices, and effective practices for mentoring novice teachers (see Table 2, pp 94-95). University faculty and staff created and facilitated both training sessions. The lead facilitator is a faculty member in the Education Department. Her research focuses on teacher preparation, special education, positive behavior supports, trauma-informed practices, and rural schools and she provides field-based supervision to student teachers working towards early childhood and elementary education certification. A second faculty member in the Education Department contributed to the training development. She has expertise in culturally relevant sustaining pedagogy and teacher preparation. Finally, a department staff member – the Director of Professional Education – assisted with facilitating the training. Her background is in Educational Leadership, and she has extensive experience providing PD to in-service teachers. The agenda, content, and activities were developed using features of effective PD that emerged from the meta-analysis of PD for teachers (Darling-Hammond et al., 2017). Efforts were made to develop training that included modeling of practices, active learning, feedback, and opportunities for self-reflection. Additionally, we worked to establish a cohesive, collaborative cohort among teachers from the three districts by setting aside time for discussion and action planning.

Measures

The primary dependent variable for this study was a survey of 37 items in total, the DCRAT scale. This scale was developed specifically for this study. It was designed to measure changes in participants' knowledge, confidence in implementing, and current/ anticipated use across four areas: positive behavior supports, trauma-informed practices, culturally relevant sustaining pedagogy, and effective practices for mentoring new teachers. We modified the CHAMPS Knowledge, Confidence, Usefulness Scale (Lane, 2020) and the PBIS

Self-Assessment Survey (Center on PBIS, 2023) as a model for the development of the DCRAT scale. On a scale from 0-5 (0 = none/ never to 5 = extremely familiar/ always), participants responded to 13 positive behavior support items, 6 trauma-informed practices items, 9 culturally-relevant sustaining pedagogy items, and 5 mentoring/ coaching novice teacher items separately rating their knowledge, confidence, and use/anticipated use for each item. Additionally, participants responded to 4 open-ended items that asked directly about the participants' perceived impact of the summer institute on their knowledge and confidence using practices across the four content areas. Reliability testing indicated that the DCRAT scale had strong internal reliability (Cronbach's $\alpha=.97$).

Data Analysis

The responses to scaled survey items were analyzed using SPSS. Eight subscale variables were created for pre and post-tests in each content area. In addition to running descriptive statistics to analyze each subscale's means and standard deviations, a Wilcoxon Signed Rank Nonparametric Test was used to compare median statistical differences between the pre and post-test responses. The responses to open-ended questions were anonymized and uploaded to ATLAS.ti software for coding. Both top-down and bottom-up coding processes (Merriam, 2009) were used. The responses were analyzed using descriptive coding (Miles et al., 2014) to identify the emerging themes in the participants' responses. We identified and analyzed the themes (Round 1), generated the codes in relation to the research questions, and, based on the themes that emerged, organized the codes into categories and engaged in another round of coding using the codes from Round 1 (Round 2).

Results

Positive Behavior Supports

Table 3 reports the findings of the descriptive and inferential statistical analysis, including significance values (p) and effect sizes (r). Effect sizes between 0.10 – 0.30 are considered small, between 0.30-0.50 are considered medium, and greater than 0.50 are considered large. The Wilcoxon Signed Rank Test indicated that post-test scores were significantly higher than pre-test scores on knowledge ($p<.001$; $r = -0.55$), con-

fidence ($p<.001$; $r = -0/51$), and use/anticipated use ($p<.001$; $r = -0/51$) of PBS practices. The qualitative analysis of the related open-ended response item revealed that the most frequently observed response in both pre-and post-test responses on what teachers can do to maintain a positive learning environment was on the importance of building relationships and creating an inclusive learning environment. In the pre-test responses, the theme that followed in frequency was the importance of setting up clear expectations and guidelines and being consistent throughout the school year. Additionally, participants' responses included flexibility and collaboration. On the other hand, one noticeable theme in post-test responses was the importance of growth mindset and asset-based approach, which was not mentioned in the pre-test. For example, one participant stated, "Reframe thinking from a deficit lens to an asset lens." Furthermore, another new theme identified is about addressing bias, as was stated by one participant: "We need to check our biases and view our students as the work itself, not an impediment."

Trauma-Informed Practices

Quantitative results from the Wilcoxon Signed Rank Test indicated that post-test scores were significantly higher than pre-test scores on knowledge ($p<.001$; $r = -0.56$), confidence ($p<.001$; $r = -0.57$), and use/anticipated use ($p<.001$; $r = -0.58$) of TIPs. We asked participants to respond to the question, "What can you do to form positive relationships with students?" because we discussed the importance of relationship building in both the training's positive behavior supports and trauma-informed practices sections. The most frequent theme identified in pre-test responses was the importance of knowing each student and providing individualized support. While this theme was also the most frequent one in the post-test, one theme found only in the post-test was the importance of diversity. One participant stated, "Teachers should see and celebrate students and their individual identities in our classes. We should also be using an asset-based perspective!" Third, on how teachers can address behavioral issues, the post-test responses included responses on celebrating the positives of the students and the importance of being aware of trauma effects.

Table 3
Knowledge, Confidence, and Use/Expected Use of Practices

	Pretest		Posttest	Wilcoxon Signed Rank Test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>Significance</i>	<i>r (effect size)</i>
PBS Knowledge	3.87	0.48	4.71	0.22	<.001*	-0.55
PBS Confidence	3.73	0.51	4.5	0.23	<.001*	-0.51
PBS Use	3.76	0.56	4.41	0.28	<.001*	-0.51
TIP Knowledge	2.66	1.14	4.41	0.51	<.001*	-0.56
TIP Confidence	2.5	1.05	4.2	0.57	<.001*	-0.57
TIP Use	2.49	1.11	4.18	0.6	<.001*	-0.58
CR-SE Knowledge	3.37	0.55	4.62	0.37	<.001*	-0.59
CR-SE, Confidence	3.27	0.53	4.44	0.4	<.001*	-0.55
CR-SE, Use	3.31	0.59	4.54	0.29	<.001*	-0.56
Mentor Knowledge	3.51	1.04	4.63	0.4	<.001*	-0.51
Mentor Confidence	3.59	1.03	4.55	0.45	<.001*	-0.46
Mentoring Use	3.36	1.11	4.37	0.81	<.001*	-0.56

* $p < .05$

CR-SE Practices

Quantitative results from the Wilcoxon Signed Rank Test indicated that post-test scores were significantly higher than pre-test scores on knowledge ($p < .001$; $r = -0.59$), confidence ($p < .001$; $r = -0.55$), and use/anticipated use ($p < .001$; $r = -0.56$) of CR-SE practices. On this topic, the participants were asked what they could do to provide equitable and inclusive learning opportunities for students from diverse backgrounds. In the pre-test, the most frequent response was on learning students' backgrounds and doing research. One of the most noticeable differences in post-test responses was that the most frequent theme was the value of providing culturally relevant teaching. For instance, one participant stated, "Design and facilitate culturally relevant learning that brings real-world experience." Additionally, another participant shared, "choose literature carefully and intentionally." The subsequent commonly observed response is on celebrating students' diversity, as in, "Develop projects that will allow students to explore/celebrate their own identities and interests." Furthermore, only in post-test did participants bring up the idea that they should take steps to address bias.

In terms of the ways to address bias in their schools, two differences were observed in the participants' pre- and post-test responses. First, responses on bringing awareness and offering PD increased from five to

nine. Second, four new themes emerged: advocacy, diversity, belonging, and asset-based approach. The responses on advocacy included not only advocating for students but also for colleagues and students' families. Moreover, regarding ways to collaborate with students' families and communities, the most common theme in pre- and post-test responses was communication, from newsletters to apps. What is stated only in the post-test response was being proactive and inviting participation from families and communities. This indicates that the participants became more aware of the value of proactively reaching out and partnering with families.

Mentoring Novice Teachers

Quantitative results from the Wilcoxon Signed Rank Test indicated that post-test scores were significantly higher than pre-test scores on knowledge ($p < .001$; $r = -0.51$), confidence ($p < .001$; $r = -0.46$), and use/anticipated use ($p < .001$; $r = -0.56$) of TIPs. Regarding teachers' knowledge, confidence in implementing, and their anticipated use of mentoring novice teachers, the most frequently identified theme in the pre-test response was on the importance of providing feedback and regular communication. For example, one participant stated, "discuss each day with new teachers what is working and what is not working." The difference between pre- and post-test responses was that the teachers were more aware of providing guidance and scaffolding.

folding for novice teachers. This was also connected to positive behavior and trauma-informed practices, as was stated by one participant: "Help novice teachers to explicitly think about evidence-based practices in positive behavior, cultural sustainability, and trauma-informed practices." Additionally, the responses on reflections, both for mentor and novice teachers, were increased from two to six. Lastly, the importance of diversity was noticed: "I have one style of teaching and they will see that style but it may not be the style that they adapt to."

Discussion

Effective support for novice teachers equips educators with the skills necessary to address diverse classroom challenges and support student success. This study investigates the impact of a summer institute PD opportunity on teachers' knowledge, confidence, and use/anticipated use of practices in four key areas: positive behavior support, trauma-informed practices, and CRSE. We used the Wilcoxon Signed Rank test to analyze pre-test and post-test survey data, and our results reveal substantial and statistically significant increases in growth across all four targeted areas. Additionally, our qualitative analysis of open-ended responses provides context for participant perceptions and insights in these areas. The summer institute incorporated the core features of effective PD; it was intentionally designed to be highly interactive and collaborative, and we included numerous opportunities for discussion and self-reflection. The alignment of our training approach with the core features of PD underlines the importance of structuring teacher training experiences beyond traditional, passive learning methods.

In the context of Pennsylvania, where the education sector is grappling with significant challenges, including high teacher attrition and a critical shortage of qualified educators, the need for effective PD for novice teachers is more urgent than ever (Boyce & Morton, 2024). Our study's findings illustrate that a well-designed, interactive PD program can effectively build mentor teachers' knowledge and address these needs.

Strengths and Limitations

Our study includes some notable strengths that contribute to its overall impact. Utilizing a mixed methods

approach, we can draw upon responses to open-ended items to develop greater context and insight into our survey results. We also relied on validated instruments to create our DCRAT survey, and our data analysis included descriptive and inferential statistics. Limitations of the study include the small sample size which may limit the findings' generalizability. Our study also measured changes within a three-day time frame, limiting our ability to understand the long-term effects.

Conclusion

Pennsylvania faces immediate challenges due to ongoing teacher shortages, a rise in emergency certified teachers, and continued early career attrition. Developing competent novice teachers who are equipped with the necessary knowledge and skills can help to address these challenges. Supportive, effective mentor teachers are an excellent resource for pre-service and early career teachers. Our 3-day summer institute was designed to build a network of trained mentor teachers who understand the skills necessary for early career success and how to support novice teachers effectively. The study's positive findings underscore the potential for similar initiatives to support novice teachers and contribute to long-term solutions for stabilizing the teacher workforce in Pennsylvania.

Table 2*Training content, activities, and resources*

Introduction/ Rationale for Training	
Content	<ul style="list-style-type: none"> ● Welcome and icebreaker ● Teacher shortages and attrition statistics, reasons, and impact ● Solutions for improving teacher retention
Activities	<ul style="list-style-type: none"> ● Personal Identity Wheel University of Michigan
Resources	<ul style="list-style-type: none"> ● Learning Policy Institute: Features of Effective PD
Mentoring/ Coaching	
Content	<ul style="list-style-type: none"> ● Evidence-based practices for supporting novice teachers (modeling effective practices, providing specific feedback, video analysis, guided self-reflection, scaffolding support)
Activities	<ul style="list-style-type: none"> ● Participant Guide: Reflect on experiences of supporting or being supported ● Video analysis: Practice observation and discussion of possible feedback and support ● Participant Guide: End of section reflection on strategies to support novice teachers
Positive Behavior Support	
Content	<ul style="list-style-type: none"> ● Rationale for focus on prevention: Tier 1 practices within a Multi-Tiered System of Support (MTSS) framework ● Creating safe, positive learning environments (designing a safe environment, establishing positive connections, developing predictable routines, defining and teaching expectations, planning relevant instruction) ● Actively promoting student social, emotional, behavioral growth (engaging students in learning, foster positive relationships, active supervision, positive, specific feedback, class wide strategies to reinforce behavior, strategies to address behavioral errors)
Activities	<ul style="list-style-type: none"> ● “Think, Pair, Share” discussion questions throughout section ● Participant Guide: Key Takeaways from section ● Action Planning: Select Activities for promoting self-development and outline strategies for supporting novice teachers in developing effective Tier 1 positive behavior support practices
Resources	<ul style="list-style-type: none"> ● Center on PBIS (2022). Supporting and Responding to Students’ Social Emotional Behavioral Needs.
Trauma-Informed Practices	
Content	<ul style="list-style-type: none"> ● Overview of adverse childhood experiences (ACES) and toxic stress ● Trauma and brain development ● Creating a trauma-sensitive classroom ● Understanding the acting out cycle ● Strategies for de-escalation ● Understanding and responding to secondary traumatic stress in teachers

Trauma-Informed Practices (continued)

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| Activities | <ul style="list-style-type: none">● Video: TED Talk on ACES● Participant Guide: Opportunities for discussion and self-reflection● Action planning: Select Activities for promoting self-development and outline strategies for supporting novice teachers in developing trauma-informed practices |
| Resources | <ul style="list-style-type: none">● Center on PBIS● Trauma-Sensitive Classroom● Adverse Childhood Experiences study |
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Culturally-Relevant Sustaining Education

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|------------|---|
| Content | <ul style="list-style-type: none">● Overview of the new state CR-SE competencies and related terms● Understanding context and specific challenges in rural school settings● Understanding one’s cultural lens, identity, and intersectionality● Identifying bias in the system (implicit and systemic/ structural)● Understanding how bias can impact all students● Asset vs deficit based pedagogies● Designing differentiated, culturally relevant, inclusive learning environments that celebrate all students● Family and community engagement● Understanding and addressing microaggressions |
| Activities | <ul style="list-style-type: none">● Social Identity Wheel University of Michigan● Identity Iceberg Anti-Defamation League● “Think, Pair, Share” discussion questions embedded throughout● Participant Guide: Key takeaways and self-reflection● Action Planning: Identifying two areas for self-growth and strategies for supporting novice teachers in developing CR-SE competencies |
| Resources | <ul style="list-style-type: none">● CR-SE Competencies (Pennsylvania Department of Education) |
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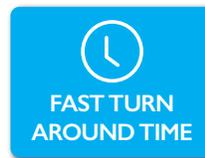
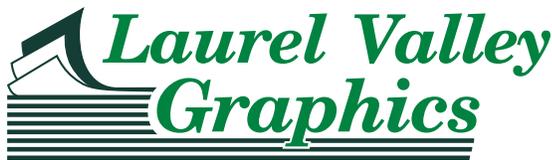
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