

## **COVER PAGE**

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Running head: DECREASING PROBLEM BEHAVIORS OF CHILDREN

Decreasing Problem Behaviors of  
Children in Appalachia through a Virtual Reality  
Preschool Teacher Preparation Program on Positive Behavior Support  
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## Abstract

The purpose of the proposed project is to study a soon-to-be developed, online, virtual reality training program that will rapidly and effectively train preschool teachers on Positive Behavior Support (PBS) practices and how to implement the practices in the classroom. The resulting program will be one that can train preschool teachers in a time-limited manner on PBS intervention strategies that require minimal effort and limited external support from a research team or other experts during the training or intervention. The target outcome of program will be increased PBS practices among preschool teachers and decreased behavior problems among children. Using a single subject multiple baseline design, the program will initially be field tested with a matched sample of eight Head Start preschools from four Appalachian counties in Alabama classified as Distressed. After field testing the program in distressed Appalachian counties in Alabama, the completed program's efficacy will be studied in Head Start classrooms in distressed counties across the 13-state Appalachian region using a single subject and quasi-experimental design.

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The Appalachian region of the United States spans 13 states along the Appalachian Mountains from New York to Mississippi (Appalachian Regional Commission [ARC], 2008). The region is more than 40% rural with poverty rates consistently below the national average from year to year (ARC). Of the 67 counties in Alabama, 37 are Appalachian counties. Four of these counties are designated as Distressed by the Alabama Department of Economic and Community Affairs (Alabama Department of Economic and Community Affairs [ADECA], 2008). Of the 358 Head Start centers in Alabama that serve 17,424 children (Alabama Department of Children's Affairs, 2008), 15 reside in the four Appalachian counties designated as Distressed.

Benedict, Horner, and Squires (2007) and Horner, Benedict, and Todd (2005) identified specific categories of Positive Behavior Support (PBS) practices for teachers in preschools. PBS uses a three-tiered Response to Intervention (RTI) logic to systematically address children's behavior problems at the primary (Tier I), secondary (Tier II), and tertiary (Tier III) levels. Although effective, the training on and implementation of PBS is often time consuming and can require regular assistance from a research team or other external experts in order to be effective.

Online training that uses virtual reality simulations may be a more efficient means to train preschool teachers. Baylis (2000) defines virtual reality as "an emerging technology that alters the way that individuals interact with computers. Virtual reality systems use advanced computer systems to create the illusion that the user is an

“inhabitant” in the fully three-dimensional world generated by the computer.” Virtual reality technology has been effective and efficient in training teachers of young children (Katz, 1999) and other helping professionals (The University of Southampton, 2004). One such virtual reality system is Second Life, a three-dimensional virtual reality platform that is used to create reality-based, interactive simulations (Linden Research, Inc., 2008).

### Purpose and Method

The purpose of the proposed project is to study the efficacy of a soon-to-be developed, online, virtual-reality (using the Second Life platform) program used to rapidly train preschool teachers on Positive Behavior Support (PBS) Tier I practices. The program is anticipated to be created, field tested, and ready for further study in approximately three years from the commencement of the development process in distressed Appalachian counties in Alabama (funds for development of the program have been applied for through a federal grant).

After completion in Alabama, the efficacy of the new program will be evaluated in one Head Start preschool classroom in each of four counties in each of the 13 states in the Appalachian region of the United States. Chosen counties must be classified as Distressed, At-risk, or similar designation by the ARC. Each classroom is estimated to include approximately one teacher to every eight children, for an approximate total of 416 children and 52 teachers participating in the study (National Head Start Association, 2008). The hypothesis is that the teacher training program will increase PBS practices among preschool teachers and decrease behavior problems among children. Data will be collected using a single subject multiple baseline design at the state level, with each

preschool within a state as the unit of analysis. Collected data also will be aggregated across states and analyzed using a quasi-experimental design. The efficacy study will take approximately one calendar year to complete with approximately 22 weeks for implementation, 15 weeks for analysis, and 15 weeks for dissemination.

#### Role of Multi-site Collaboration

As the project entails working across 13 states, multi-site collaboration will be necessary and essential. Collaboration with a one faculty member from a college or university in each of the 13 states in the Appalachian region is preferable. The challenge of multi-site collaboration will be organizing and coordinating research teams and field personnel throughout all states, as well as gaining cooperation from Head Start classrooms. However, some guidance will be available from the field testing that will have previously taken place in Alabama.

It also warrants mention that some multi-site collaboration during program development is optimal. The federal grant written for development of the training program was written in such a way that allows input and feedback from external experts. In addition, the Dissemination and Efficacy Study Planning phase of the program's development will work best with cooperation from expert collaborators from the 13 Appalachian states as well as other knowledgeable experts.

#### Budget

Based on previous estimations made for the program development process, the cost of the proposed efficacy study is approximately \$13,000 for travel and related expenses, \$52,000.00 for computer and related equipment for classrooms and \$5,000.00 for miscellaneous supplies and expenses for a total estimated budget of \$70,000.00.

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Running head: PERSONAL RESEARCH AGENDA FOR CRAIG RUSH

Personal Research Agenda for Craig Rush

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### Personal Research Agenda for Craig Rush

My current research agenda is an outgrowth of my earlier research on teachers' perceptions. In my first published article, using data from my dissertation, I created a model that highlighted training as an underlying component of teachers' perceptions of and efficacy with children. The issue of training, coupled with legislative changes at the state and federal levels, compelled me to examine progressive avenues of training. While a faculty member at a NASP-approved program in Florida, I was fortunate to have the opportunity to co-create a state grant-funded training module on Response to Intervention (RtI) for graduate students in school psychology and counseling. More recently, my interest and background in training issues and RtI has spawned a research agenda focused on the application of distance learning and virtual reality technology to training educational professionals.

Of particular interest to me is training educators who work with at-risk students in disadvantaged regions of the country. Preschool children from low-income families are particularly at-risk for poor academic and behavioral outcomes later in life. As a result, a need exists for interventions targeted at preschool children from low-income families. Targeting a program toward preschool children in Alabama's Appalachian counties is consistent to this end. Examining interventions for preschool children is even more important given the recent expansion of public Pre-K programs in Alabama by the state's governor in June 2008 that will double the number of children served by public preschool programs in the state (Associated Press, 2008). Furthermore, recent legislation requires Head Start teachers to have a four-year college degree by 2011 (National Head Start Association, 2008).

Last month, I submitted a federal grant proposal to develop an online training program for teachers in rural preschools. After field testing the program in distressed Appalachian counties in Alabama, I plan to study the program's efficacy in Head Start classrooms in distressed counties across the 13-state Appalachian region, and, subsequently, other disadvantaged regions of the country.

Another related project I am currently working on is developing an online curriculum for an Ed.S. program in school psychology that utilizes virtual reality technology. Curtis, Grier, and Hunley (2004) predict that many rural states, including Alabama, will be the most severely affected states by the looming shortage of school psychologists. Furthermore, children in rural areas are not only being underserved by school psychologists, but the few school psychologists serving those students are typically not from the same ethnic or racial background due to the widespread ethnic/racial disparity in the field (McIntosh, 2004). The National Association of School Psychologists recommends a school psychologist-to-student ratio of 1 to 1,000 (Curtis, et al., 2008). However, Chavat (2008) reports the current national average of 1 to 1,671. In Alabama, the school psychologist-to-student ratio is 1 to 4,997, one of the largest in the country (NASP, 2004). Increasing opportunities for prospective school psychology students in remote rural areas through distance learning technology is a means for addressing this problem.

Although tangent to my primary scholarly agenda, for the last few years I have collaborated on a project that compared the results of bilingual, Greek-speaking children on a back translation of the WISC-IV Word Reasoning subtest to matched English-speaking controls. I hope to continue this type of inquiry.

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