



(AJE)

# The Athens Journal of Education



(AJE)

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## Articles

### Front Pages

*VICTORIA CARR & MARY BOAT*

["You Say Praise, I Say Encouragement" - Negotiating Positive Behavior Support in a Constructivist Preschool](#)

*JENNY A. M. MCGOWN & JOHN R. SLATE*

[Differences by Economic Status in Grade 3 Reading Performance: A Texas Multiyear Study](#)

*BATINI FEDERICO, MARCO BARTOLUCCI & ERMELINDA DE CARLO*

[I Feel Good at School! Reducing School Discomfort Levels through integrated Interventions](#)

*SOLY MATHEW BIJU*

[Benefits of Working in Pairs in Problem Solving and Algorithms - Action Research](#)

*MEHMET EVRIM ALTIN*

[Internationalization of the German Higher Education System New Player in the Market](#)



**ATHENS INSTITUTE FOR EDUCATION AND RESEARCH**

*A World Association of Academics and Researchers*

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ATINER is a *World Non-Profit Association* of Academics and Researchers based in Athens. ATINER is an independent **Association** with a **Mission** to become a forum where Academics and Researchers from all over the world can meet in Athens, exchange ideas on their research and discuss future developments in their disciplines, **as well as engage with professionals from other fields**. Athens was chosen because of its long history of academic gatherings, which go back thousands of years to *Plato's Academy* and *Aristotle's Lyceum*. Both these historic places are within walking distance from ATINER's downtown offices. Since antiquity, Athens was an open city. In the words of Pericles, *Athens "... is open to the world, we never expel a foreigner from learning or seeing"*. ("Pericles' Funeral Oration", in Thucydides, *The History of the Peloponnesian War*). It is ATINER's **mission** to revive the glory of Ancient Athens by inviting the World Academic Community to the city, to learn from each other in an environment of freedom and respect for other people's opinions and beliefs. After all, the free expression of one's opinion formed the basis for the development of democracy, and Athens was its cradle. As it turned out, the Golden Age of Athens was in fact, the Golden Age of the Western Civilization. *Education* and *(Re)searching* for the 'truth' are the pillars of any free (democratic) society. This is the reason why *Education* and *Research* are the two core words in ATINER's name.

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Download the entire issue ([PDF](#))

<b><u>Front Pages</u></b>	i-viii
<b><u>"You Say Praise, I Say Encouragement" - Negotiating Positive Behavior Support in a Constructivist Preschool</u></b>	171
<i>Victoria Carr &amp; Mary Boat</i>	
<b><u>Differences by Economic Status in Grade 3 Reading Performance: A Texas Multiyear Study</u></b>	189
<i>Jenny A. M. McGown &amp; John R. Slate</i>	
<b><u>I Feel Good at School! Reducing School Discomfort Levels through integrated Interventions</u></b>	209
<i>Batini Federico, Marco Bartolucci &amp; Ermelinda De Carlo</i>	
<b><u>Benefits of Working in Pairs in Problem Solving and Algorithms - Action Research</u></b>	223
<i>Soly Mathew Biju</i>	
<b><u>Internationalization of the German Higher Education System New Player in the Market</u></b>	237
<i>Mehmet Evrim Altin</i>	

# Athens Journal of Education

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Before you submit, please make sure your paper meets some [basic academic standards](#), which include proper English. Some articles will be selected from the numerous papers that have been presented at the various annual international academic conferences organized by the different [divisions and units](#) of the Athens Institute for Education and Research.

The plethora of papers presented every year will enable the editorial board of each journal to select the best ones, and in so doing, to produce a quality academic journal. In addition to papers presented, ATINER encourages the independent submission of papers to be evaluated for publication.

The current issue of the Athens Journal of Education (AJE) is the third issue of the sixth volume (2019). The reader will notice some changes compared with the previous issues, which I hope is an improvement.

Gregory T. Papanikos, President  
Athens Institute for Education and Research



## Athens Institute for Education and Research

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#### **21<sup>st</sup> Annual International Conference on Education** **20-23 May 2019, Athens, Greece**

The [Education Unit](#) of the Athens Institute for Education and Research (ATINER) organizes its **21<sup>st</sup> Annual International Conference on Education, 20-23 May 2019, Athens, Greece** sponsored by the [Athens Journal of Education](#). The aim of the conference is to bring together scholars and students of education and other related disciplines. You may participate as stream leader, presenter of one paper, chair a session or observer. Papers (in English) from all areas of education are welcome. Please submit a proposal using the form available (<https://www.atiner.gr/2019/FORM-EDU.doc>).

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# "You Say Praise, I Say Encouragement" - Negotiating Positive Behavior Support in a Constructivist Preschool

*By Victoria Carr\* & Mary Boat†*

A participatory action research study conducted at the Arlitt Child Development Center, a laboratory preschool at the University of Cincinnati, used naturalistic inquiry to create a solution for addressing challenging behaviors within an early childhood developmental and constructivist framework. In focus groups facilitated by a school psychology doctoral student, the center's preschool teachers created constructivist strategies for addressing a Tier I Positive Behavior Intervention and Support (PBIS) framework that was based on Response to Intervention (RTI) processes. The aim was to assess the dissonance between behavioral and constructivist approaches to early childhood interventions, often most evident in teacher language used and the emphases on reinforcement strategies in behaviorist literature. Researchers employed eco-constructivism, a philosophical perspective for addressing challenging behaviors that emerge within the ecology of the classroom, to interpret teachers' responses that were oriented toward fostering children's self-regulation skills and child agency. Findings indicate that an eco-constructivist approach to PBIS may serve as a model for blended practices in early childhood programs.

*Keywords:* early childhood education, eco-constructivism, challenging behaviors, positive behavior and intervention supports, self-regulation.

## Introduction

Early childhood educators work in varied types of preschool programs. These include Montessori, Reggio Emilia, Waldorf, nursery school or within programs that have self-identified monikers and pedagogical orientations. Yet, most early childhood programs use curricula grounded in constructivism, where children construct knowledge through their interactions with materials, adults, their peers, and their ideas (Bruner, 1966; Dewey, 1910; Piaget, 1962; Vygotsky, 1978). Stemming from the tenets of what educators in the United States of America (USA) call developmentally appropriate practice, teachers who are well-grounded in theory and constructivist practice reject behavioral teaching approaches because constructivism belies the processes of reinforcement and direct instruction. However, within the scope of a high performing classroom that is developmentally appropriate, practices range from inquiry and scaffolding to intentional instruction techniques such as prompting, modeling,

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and other evidence-based-practices (Copple & Bredekamp, 2009). While terminology between behaviorist and constructivists continues to be hotly debated, when used properly reinforcement can clearly communicate to children who have challenging behaviors what behaviors are appropriate, increasing the chances the positive behavior will return. This is the essence of positive behavior intervention and supports (PBIS). PBIS is an effective method for addressing the function of inappropriate behaviors in early childhood classrooms. Yet, implementing PBIS practices in classrooms where constructivism philosophically grounds teacher-child interactions is challenging. PBIS may be particularly challenging when different disciplines engage practices based on differing theoretical approaches (e.g., a behaviorally-oriented school psychology approach within a constructivist laboratory preschool).

Inherent in constructivist early childhood classrooms is the belief that the messages children receive are very important to positive development. Messages that support children's conceptual understandings are critical to child growth and development and go beyond the learning that may result from reinforcement of behavior alone. PBIS, on the other hand, stems from a practical applied behavioral analysis stance to promote adaptive behaviors and reduce those behaviors that interfere with meaningful participation in classrooms and the community. It is certain that children, who have challenging behaviors, or those who are in need of mental health supports, are present in constructivist classrooms. Yet, the advocacy by traditional behavioral interventionists on the use of teacher "praise" to reinforce desirable behaviors can often be arbitrary or meaningless (Kohn, 1999). This is the primary reason for constructivist teachers' rejection of PBIS. However, within the classroom ecology, a continuum of strategies must be applied. How these strategies are used are primarily evident within the language used to communicate with and provide feedback to young children.

This paper presents the findings from a participatory action research project conducted in the Arlitt Child Development Center, a laboratory preschool at the University of Cincinnati, a research intensive university in the Midwestern state of Ohio in the United States. The preschool is inclusive of all children and many have challenging behaviors that emerge during the preschool years. As Bell, Carr, Denno, Johnson, and Phillips (2004) explain, these challenging behaviors may be related to health conditions, identified or unidentified disabilities, staggered or uneven development, social competence, mental health, trauma, abuse, child-rearing practices, or other environmental, interactional, or internal issues. In this study, constructivist master level preschool teachers and school psychology doctoral-level consultants were charged with creating a working model of principles and practices that would allow for teacher comfort in providing Tier I positive behavioral intervention and supports for children who displayed challenging behaviors within a constructivist classroom. We present this concept as an eco-constructivist approach to PBIS intervention. The outcomes of this collaboration produced a Tier 1 Child Support Framework for the Arlitt Child Development Center with regard to the following PBIS infrastructure: a) forming relationships, b) guidelines of the classroom, c)

classroom schedule, d) classroom matrix of behavioral expectations for each classroom routine, e) transition signal, f) warning prior to transitions, g) pre-teaching, h) specific verbal encouragement, i) ratio of positive statements vs. redirections or planned ignoring, and j) acknowledgement system. Overall, the collaboration resulted in a viable and acceptable model for implementing PBIS in the inclusive Arlitt Child Development Center preschool.

Given that preschool is also the first schooling experience for many enrolled children, it is often the environment in which a child may be first identified as having special needs. This is accomplished through a systematic collection of data analyzing a child's response to the curriculum, instruction, and intervention. Therefore, it is critical that teachers use evidence-based strategies within a developmental model of instruction to ensure a high quality preschool experience for children. At the Arlitt Child Development Center, the developmental model is grounded in constructivism, so intervention strategies must be acceptable to teachers who embrace this theoretical approach to teaching young children. The challenge is that PBIS is oriented to behavioral interventions that conflict with constructivist approaches to teaching.

### **Literature Review**

Over the past 50 years, the mission of early childhood education (ECE) in the United States of America (USA) has shifted from a primary focus on developmental principles in support of typical child development serving some children to a stronger focus on serving all young children in ECE environments (e.g., preschool, group child care). This shift has focused not only on serving children at risk due to economic status (e.g., Head Start), but also the inclusion of children with special needs. The movement toward inclusion of all emanated from both legal and ethical arguments. Legal precedent supporting the rights of children with disabilities to Free, Appropriate Public Education (FAPE) in the Least Restrictive Environment (LRE) (e.g., PL 94-142; PL 99-457; PL 101-476; PL 105-17; PL 108-446) provided a clear basis for seeking equity in environment and experience for young children. Moral/ethical arguments were derived from the inequities in experience and the limitations in growth for all children inherent in separate learning environments.

With the increased emphasis on providing ECE opportunities for all children in shared learning environments, the demands on teachers to understand and meet the needs of all children (e.g., children with and without disabilities) has brought together the fields of Early Childhood Education (ECE) and Early Childhood Special Education (ECSE). Although both fields share common goals, they evolved from fundamentally different theoretical models/ philosophies.

Early childhood education drew significantly from theories and principles of child development, relying heavily on constructivist theories and approaches to teaching and learning (Bruner, 1966; Dewey, 1910; Piaget & Inhelder, 1962; Vygotsky, 1978). Alternatively, ECSE evolved primarily from the behavioral principles informing special education practices (Skinner, 1953; Grisham-

Brown, Hemmeter, & Pretti-Frontczak, 2005). As such, the two fields grew along parallel, but fundamentally different paths. With increasing recognition of the importance of inclusive learning environments, the fields ECE and ECSE have had to consider ways to join policy and practice to promote positive outcomes for all children (e.g., Developmentally Appropriate Practices, NAEYC; DEC Recommended Practices, DEC). The resulting practices often are referred to as *blended practices*. At the core of blended practices in inclusive ECE environments is the belief that strategies that support children with special needs are equally beneficial to children considered typically developing (Grisham-Brown, Hemmeter, & Pretti-Frontczak, 2005). A similar approach is supported by principles of Universal Design for Learning (UDL) providing a framework to enhance teaching and learning in ways that are more responsive to individual learning needs (CAST, n.d.). Meyer, Rose and Gordon (2014) drew from research in education, neuroscience, and technology to develop the UDL framework. The premise of the framework is to structure curriculum and instruction so that children have multiple ways to engage with the materials and activities and show they have learned the content in varying ways. Just as young children use a variety of approaches to engage their environments, they also need differing degrees of structure and direction for effective skill development (Dinnebeil, Boat, & Bae, 2013). Within UDL, teachers use a variety of alternatives to ensure children are supported in their learning. In a preschool environment, this is often viewed as a self-leveling curriculum where materials and instructional activities can be accessed by children across developmental and multi-age groupings.

While the importance of creating blended learning environments for all children in ECE has received support, the process of blending practices has been more challenging. One major barrier to a unified set of practices has been the different terminology used in constructivist vs. behavioral approaches to teaching and learning. While the two philosophical approaches focus on different views of child agency, in many ways the actual practices encouraged by constructivism and behaviorism are similar; sometimes the difference is merely semantics. To address the discrepancy between viewpoints, Carr and Boat (2007) suggest inclusive programs adopt an eco-constructivist philosophical view for educating young children and providing intervention supports as needed. Specifically, eco-constructivism reflects an integrated view of teaching and learning using a continuum of strategies to foster ecologically sound and high quality early childhood environments that support child agency. In an eco-constructivist environment, teacher initiated strategies support child self-regulation. In addition, eco-constructivism supports learning opportunities in which children construct knowledge through inquiry with teacher-scaffolded supports (Carr & Boat, 2007). Behavioral supports are only used when necessary. This continuum begins with well-designed play and learning environments and instructional strategies that support child-centered learning. On the other end of the continuum lies teacher-directed instruction that utilize more extrinsic controls. While this approach blends behavioral strategies into typical programming, in eco-constructivism it does so in a way that is acceptable to

teachers who use constructivist teaching methods. It is also an approach that explicitly values child agency and emphasizes self-regulation as an intrinsically motivated activity (Kohn, 1999).

Bronson (2000) synthesizes the underpinnings of self-regulation from psychoanalytic, behavioral, social learning, social cognition, Vygotskian, Piagetian, Neo-Piagetian, and information processing theories. Yet, it is the dramatic difference between the behaviorist's assertion that self-regulation is learned through reinforcement and the constructivist's assertion that self-regulation emerges from the need for equilibrium and problem-solving. Within an eco-constructivist approach, it is important to understand these theoretical influences on self-regulation and, in particular, the role of the teacher in supporting children's development of self-regulation and appropriate classroom behavior. An eco-constructivist approach acknowledges the influences of social learning theory on self-regulation in the context of the child's perception of the environment and his or her own effectiveness within the ecology of the environment. On the other hand, it dismisses the systematic reinforcement schedules of behaviorism, but focuses instead on the child's increasing understanding of the environment and the interactions of the people within it, or the ecology within the classroom. Thus, in an effort to address challenging behaviors in an eco-constructivist classroom, teachers focus on a continuum of guidance strategies that assist children in problem-solving by pointing out relevant features of the problem or suggesting problem-solving possibilities while modeling desirable behaviors and pointing out what children are doing to be successful in the classroom. These strategies help children develop cognitive self-regulation, independent problem-solving skills, and internalize skills for future use (Bronson, 2000).

### **Challenging Behaviors**

ECE teachers often cite challenging behaviors as a barrier to successful inclusive environments. Statistics suggest approximately one-third of preschool age children in the US demonstrate challenging behaviors (Rescorla et al., 2011), yet teachers often feel ill-equipped to address behavioral issues. As teachers struggle to support young children with challenging behaviors, the children are at much higher risk for exclusion or expulsion from ECE classrooms (Gilliam, 2004). Therefore, in an effort to maintain an inclusive classroom, teachers may seek help and strategies from behavioral specialists, colleagues, or other resources; or they may face the challenges alone.

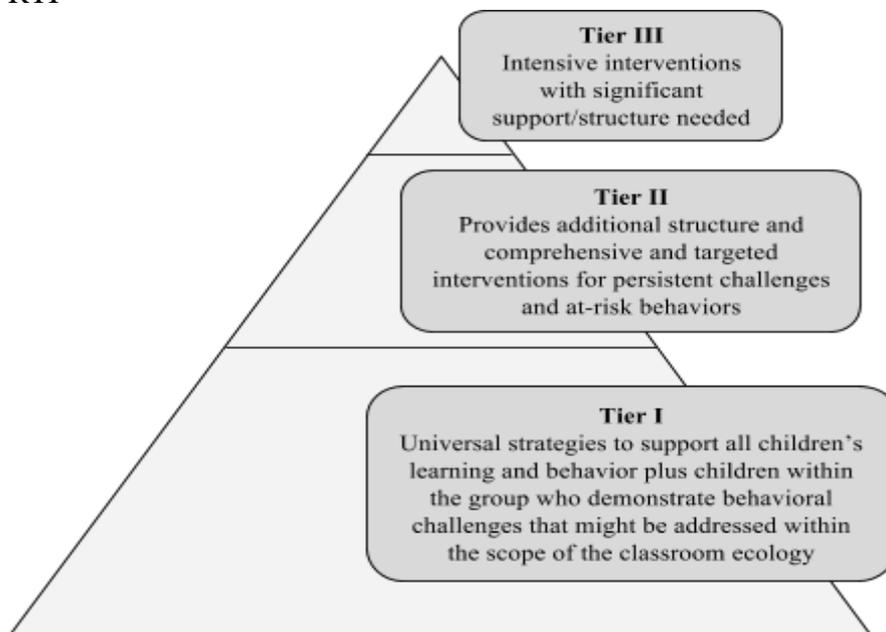
The demands of challenging behaviors in the classroom have clear implications for teacher professional development focused on utilization of a continuum of strategies that promote child success. To maintain the integrity of a quality ECE environment, such a continuum must be grounded in constructivist approaches supported by strategies of increasing intensity and directedness based on individual student need. Well-researched strategies such as instructional and caring contacts, or prompting, modeling, etc., contribute to children's learning and are inherent in a master teacher's pedagogical repertoire (Boat &

Carr, 2007). However, it has been found that preschool teachers who struggle with implementation of positive guidance strategies use fewer effective instructional strategies (Boat, et al., 2009). This lack of teacher effectiveness has strong implications for children's learning and may contribute to children being identified as having behavioral challenges and special needs when the issue is actually negative guidance and relevant pedagogy.

### Response to Intervention

Response to Intervention (RTI) is a tiered model of supports for, "*the early identification and support of students with learning and behavior needs*" (RTI Action Network, n.d., para.1). RTI in ECE has four primary components: "*...multi-tiered systems of teaching and caregiving practices; a high-quality curriculum; ongoing assessment and continuous progress monitoring; and collaborative problem solving among team members*" (DEC, 2013, p. 6). These components inform process and procedure to ensure interventions move from less individualized and intensive to more individualized and intensive strategies (DEC, 2013). Using the RTI framework, challenging behaviors may be addressed at any one or across all three levels. For teachers in ECE classrooms it is particularly important that they develop proficiency with strategies within Tiers I and II (see Table 1). Positive behavioral intervention and supports can play a critical role creating classroom environments that provide children with sufficient guidance toward successful engagement.

Figure 1. Tiered Model of Positive Behavioral Intervention and Support within RTI



As Figure 1 indicates, within the RTI model, type and intensity of intervention is based on student response to individual intervention. Intensity of

instructional strategies or intervention increases only when students are not responsive to less intensive approaches.

### **Role of Positive Behavioral Interventions and Supports**

Positive Behavior Interventions and Supports (PBIS) are a well-established, evidence-based group of strategies promoting positive social skill development to decrease challenging behaviors (Fox, Dunlap & Powell, 2002; Jolstead, Caldrella, Hansen, Korth, Williams, & Kamps, 2016). Benedict, Horner, & Squires (2007) assert that the essential aspects for PBIS that revolve around the universal practices include classroom materials (posted rules, schedules), transitions (warnings, signals, precorrection), and classroom routines (acknowledgement of rules, ratio of positive to negative statements, and praise). The foundations and features of PBIS are behavioral science, practical interventions, lifestyle outcomes, and a systems perspective (Sugai et al., 2000). The theoretical underpinning of behaviorism is that behavior can be predicted and controlled. Therefore, the fundamental belief of PBIS is that behavior is learned and can be changed, that teaching is a change tool, that behavior change must be socially significant, and that procedures must be socially, culturally, and contextually appropriate (Sugai et al., 2000). A continuum of behavioral supports has been advocated for within the scope of PBIS, but with the focus on evidenced-based practices prevalent in the special education behaviorist literature, such strategies are often deemed too externally driven by constructivist teachers who emphasize self-regulation and respect for child agency.

Constructivist theory is grounded in the premise that we make or construct meaning from our experiences and that the child is an active participant in his or her own learning, so constructivist teachers often reject behavioral strategies. Self-regulation, however, is a complex process and takes time with repeated learning opportunities for a child to inhibit one's actions and follow rules and procedures (Bodrova & Leong, 2007; Blair, 2009; Bronson, 2000). Teachers must be intentional in how they support this process. This is where the PBIS and constructivist approaches intersect. When the Arlitt Child Development constructivist preschool teachers needed to address challenging behaviors in approximately 15% of its program's enrollees, PBIS strategies were introduced by a school psychology doctoral student and revised by classroom teachers. This approach to consultation has treatment integrity in intervention design through a discussion of intervention implications and the practical use of scripts (Barnett, Bell, & Carey, 1999). School psychology students study intervention from a behavioral perspective and preschool teachers approach early childhood education from constructivist theory. Thus, scripts created through collaborative consultation can serve as a transformative process for all participants.

## Methods

The methodology for this study was a naturalistic inquiry focused on creating a solution (O'Leary, 2005) for addressing challenging behaviors within an early childhood developmental and constructivist framework utilizing the evidence-based practices inherent in the early childhood special education literature. The problem was the dissonance between the philosophical approaches to education-constructivism and behaviorism. Besides the philosophical orientation toward how children learn, teachers perceived differences in the use of language between a behaviorist and constructivist as an overt and well-versed debate of praise versus encouragement or the general praise of positive behavior using words like "good job" or an enthusiastic non-verbal reinforcer such as a 'high five' instead of authentic encouragement of child processes and agency. Positive behavior intervention and support (PBIS) is by definition a behaviorally-based systems approach to make problem behaviors less desirable for children and positive behavior more desired by children (Sugai, et al., 2000). The solution-based approach to creating an understanding of evidence-based tiered supports for addressing challenging behaviors and a framework for a positive behavior support model was a participatory action research design (Stringer, 2014). Within this approach, the researchers facilitated teacher focus groups to assess needs, envision a framework for positive behavior support, and design procedures, actions, and scripts that would guide an eco-constructivist approach to Tier I interventions in early childhood education. The aim was to provide teachers with an opportunity to clarify their positions on and strategies for using PBIS in a social context.

### **Arlitt Child Development Center**

The Arlitt Child Development Center at the University of Cincinnati is a constructivist laboratory preschool that resides within the School of Education's Arlitt Center for Education, Research, & Sustainability in the College of Education, Criminal Justice, and Human Services. The center is rated at the highest level for early childhood programs in Ohio and is accredited by the National Association for the Education of Young Children. With its inception in 1925, it is one of the oldest laboratory preschools in the USA. The Arlitt Child Development Center serves 136 children in 8 classrooms. The preschool program is fully inclusive of children with disabilities and is economically, ethnically and racially diverse. The fully inclusive classes of 17 children are mixed by age (3-5 years) and funding source, either tuition or Head Start, a federally-funded program for low income families. The classes are ability, socio-economically, racially, and ethnically diverse. In most years, 10- 15% of the children have identified special needs and/or challenging behaviors. Two full day classrooms are served by three teachers each, two morning and afternoon classrooms have two teachers, respectively, who "flip", serving as lead and associate for the morning and afternoon sessions, and one morning and half day has a different lead for each session plus an assistant who teaches

with both lead teachers.

### **Participants**

In all, eleven teachers participated in the focus group. Six teachers held education master's degrees, two had bachelor degrees, and three had associate degrees. Of the two men and nine women teachers, all were Caucasian except two women who were Latina and African-American. At the time of this study, all teachers were employed at the preschool for 3-27 years with a mean of 14 years of service. Other participants included a school psychology doctoral student from the college's School of Human Services, who was hired by the Arlitt Child Development Center as a graduate assistant to support the Head Start mental health requirements and overall special needs within the center. She facilitated the focus group with the support of the Director of Children's Programs and the Executive Director of the research center, both of whom attempted to serve as catalysts for the generation of ideas to address challenging behaviors that impacted the ecology of the classroom. Teachers at the Arlitt Child Development Center wanted to implement effective strategies for addressing challenging behaviors, but were uncomfortable with behavioral language used as intervention common to PBIS.

Within the focus group, participants first discussed why they were studying PBIS and the significance their focus group work would have on center procedures and the children they served. They were presented with the tiered model of positive behavior support based on the PBIS literature with strategies suggested by the school psychologist doctoral student (Donovan, McCoy, Denune, Barnett, Graden, & Carr, 2015). She requested that teachers visualize what Tier I interventions might entail for children in their care without compromising the integrity of the philosophical framework for the center. Next, the teachers were asked to brainstorm strategies and potential scripted language that might be appropriate to redirect children toward acceptable behaviors, remind children of rules and procedures, reinforce desirable behavior, encourage perseverance toward goals or skill development, and support self-regulation. The teachers' ideas were compiled into the following PBIS framework categories: a) forming relationships, b) guidelines of the classroom, c) classroom schedule, d) classroom matrix of behavioral expectations for each classroom routine, e) transition signal, f) warning prior to transitions, g) pre-teaching, h) specific verbal encouragement, i) ratio of positive statements vs. redirections or planned ignoring, and j) acknowledgement system. The outcomes of the brainstorming session were compiled by the doctoral student and reviewed and edited at a subsequent teacher focus group to ensure member-checking and respondent validation (Lincoln & Guba, 1985).

## Findings

The outcomes from the focus group were grounded in the teachers' views of authentic and constructivist teaching practices. However, consideration was given by teachers to more behavioral strategies such as using a picture exchange system for language communication. This strategy had been implemented with twin boys who had autism and were English language learners the previous year by two of the participant teachers. A discussion of discomforts related to using these behavioral strategies and the progress made by the twins with regard to communication and a reduction in inappropriate classroom behaviors supported inclusion of this strategy within the framework. This example generated additional discussion of differences in language and practices between the behavioral orientation of the school psychology program and the constructivist teachers in the preschool program. Thus, the foundations of PBIS whereby the strategies must be contextually relevant were honored by the school psychology students and, consequently, deemed acceptable by the teachers. Table 1 shows the outcomes from the focus groups with examples of acceptable language for scripted child support and intervention.

In general, within each of the categories the Arlitt teachers created language scripts with cues for positive behavior that were compatible with their philosophical approach to pedagogy. For example, "You are sitting on your mat and you are ready for group" is a statement that acknowledges the desired behavior for a child, provides positive regard, and encourages this behavior for the next transition to group. Teachers were also explicit about serving as models, designing the environment to serve as a guidance tool, and using transitions to reduce the frequency of undesirable behaviors. They proposed using visual cues in the form of picture schedules for routines and books to strengthen teacher-child-peer relationships. In addition, they were explicit about being respectful toward the child, such as stating "Use children's names rather than endearments." Overall, teachers were intentional in addressing the Tier I framework categories set forth by the school psychology doctoral student with specific script examples that would yield consistency and treatment integrity in intervention design. The language, however, was encouraging and focused on what children do to affect their own success. In addition, an emphasis was placed on child-centered problem-solving and self-regulated tasks by using inductive guidance strategies that connect behavior with its effect on oneself or others, cooperation, and choice. The use of adult and peer modeling and adult collaboration to promote prosocial behavior was also evident in the teachers' responses.

Table 1. Arlitt Tiered Support Model with Examples

<b>Tier I Child Support Framework</b>	<b>Examples</b>	<b>Modifications for Children who Need Additional Supports</b>
<b>Forming Relationships</b>	<ul style="list-style-type: none"> <li>● Use children's names rather than endearments</li> <li>● Learn about and having conversations about child's personal interests.</li> <li>● Create environments to foster relationships</li> <li>● Use positive and respectful affect</li> <li>● Conduct home visits and have short visits at beginning of year</li> <li>● Have respectful interactions with child's family</li> <li>● Use active listening</li> <li>● "All About Me Book"- each child creates a story at the beginning of the year</li> <li>● Put things in classroom that reflect interests of children</li> <li>● Model respectful behavior and positive relationships with one another (i.e., teachers)</li> </ul>	<ul style="list-style-type: none"> <li>● Create a transition book for classroom (specific to child including interests).</li> <li>● Conduct extra home visits.</li> <li>● Modify transition schedule with increased parent support.</li> <li>● Build time into schedule to form relationships (e.g., specific plan or eat lunch with specific teacher).</li> <li>● Offer appropriate choices- giving children power.</li> </ul>
<b>Guidelines of the Classroom</b>	<ul style="list-style-type: none"> <li>● State guidelines in a positive way (what you can do rather than what you can't do)</li> <li>● Use logical and natural consequences for following or not following guidelines (e.g., "If you throw sand, it may get in your eyes.")</li> <li>● Offer reason for guidelines</li> <li>● Design classroom to be conducive to child independence, making guidelines self-evident</li> </ul>	<ul style="list-style-type: none"> <li>● Use social stories</li> <li>● Co-create contracts with individuals or a group.</li> <li>● Solicit parental/family input and use a consistent script with families</li> <li>● Reduce verbal communications and use a simple direct tone/statement</li> <li>● Use classroom zoning or child shadowing</li> <li>● Modify the schedule or environment</li> <li>● Individualize specific to child's needs</li> <li>● Model and practice specific behaviors before target times of the day</li> <li>● Make statements in a way that helps child internalize effect (e.g., "If you throw your body on the floor, you may get hurt.")</li> <li>● Focus on positive interactions</li> <li>● Engage in positive, 1:1 positive, neutral, or preferred activity prior to non-preferred activity</li> </ul>

<p><b>Classroom Schedule</b></p>	<ul style="list-style-type: none"> <li>● Create a picture schedule</li> <li>● Prepare a schedule with large blocks of time for children to maintain engagement in an activity with few transitions</li> </ul>	<ul style="list-style-type: none"> <li>● Create an interactive mobile picture schedule that may be individualized for a child (e.g., a book for individual child with pictures targeted to child's day)</li> <li>● Break down difficult times of the day into smaller chunks (e.g. verbal or pictorial using a choice board, or group activity)</li> <li>● Ensure picture schedules are interactive and concrete</li> <li>● Modify child's day to make it shorter, adding time to the day as the child becomes more successful</li> <li>● Rearrange the child's schedule if needed</li> <li>● Respond to the needs of the children by co-planning with child(ren) or sharing the lesson plan with child(ren) to get child(ren) more invested (i.e. shift power to child by allowing child to make choices)</li> <li>● Provide reminders of the schedule throughout day</li> <li>● Use a picture exchange system for communication</li> </ul>
<p><b>Classroom Matrix of Behavioral Expectations for Each Classroom Routine</b></p>	<ul style="list-style-type: none"> <li>● Hold teacher meetings and/or engage in conversations to review expectations and make adjustments or modifications</li> <li>● Use artifacts to specify the number of children allowed at an activity (e.g., the number of smocks located at the easels or sensory table)</li> <li>● Create a written waitlist for high interest activities</li> </ul>	<ul style="list-style-type: none"> <li>● Encourage observations of peers at targeted activity</li> <li>● Participate with a peer (i.e., peer modeling)</li> <li>● Begin activity with child then phase out of the play</li> <li>● Provide explicit instructions</li> <li>● Create and use scripts for specific responses to child's behaviors</li> <li>● Support the child while waiting (e.g., show time on clock; discuss the painting of a peer; say "what will you do when it is your turn?")</li> <li>● Acknowledge the feelings of the child (e.g., "I know it is hard to wait.")</li> <li>● Follow through when it is the child's turn (i.e., use the waitlist)</li> <li>● Support other teachers when expectations/limits are stated (e.g., "I hear Joe saying...")</li> </ul>

<p><b>Transition Signal</b></p>	<ul style="list-style-type: none"> <li>● Sing transition songs</li> <li>● Make eye contact</li> <li>● Give a five minute warning</li> <li>● Allow the child to give the transition warning with the teacher</li> <li>● Ask the child to move his or her name card dependent on the activity (e.g., going to the muscle room)</li> </ul>	<ul style="list-style-type: none"> <li>● Use a visual card - an individualized schedule</li> <li>● Stay with the child during the transition and walk through the routine.</li> <li>● Ask the child to walk with the teacher to give the transition warning to other children</li> <li>● Be very descriptive of the behavior you want a child to demonstrate</li> <li>● Tag teach: use a tag team approach with another teacher to address power struggles</li> <li>● Modify the warning if it is a negative trigger for the child</li> <li>● Provide specific directions</li> <li>● Allow the child to make a choice during the transition song (e.g., "What color should we say in the song?")</li> </ul>
<p><b>Warning Prior to Transition</b></p>	<ul style="list-style-type: none"> <li>● Say "Five more minutes until ____"</li> <li>● Say "When you finish the ____ it will be time for ____."</li> </ul>	<ul style="list-style-type: none"> <li>● Give direct one to one warning to child</li> <li>● Modify warning time prior to transition compared to peers</li> <li>● Give child responsibility to prepare other students for transition (e.g., put the 'closed' sign on dramatic play area)</li> <li>● Make a positive statement directly to the child about the next activity</li> <li>● Use a visual timer (e.g., sand timer, bell timer)</li> <li>● Tape a mark on the clock denoting transition time</li> <li>● Use a transition song</li> <li>● Use video/picture modeling</li> </ul>
<p><b>Pre-teaching</b></p>	<ul style="list-style-type: none"> <li>● Use print for explicit guidelines</li> <li>● Use class-wide or small group modeling and statement of expectations</li> </ul>	<ul style="list-style-type: none"> <li>● Model and scaffold prior to target activities</li> <li>● Create selective groupings or intentional groupings of children</li> <li>● Use small group modeling with child included</li> <li>● Use individual modeling with child before target activity</li> <li>● Shorten language (reduce words) used for child</li> <li>● Script intentional language to be used (e.g., all teachers and family members use the same scripted message)</li> <li>● Script intentional message related to behavior (may be improv, but keep "heart" of message)</li> <li>● Use picture schedules, picture prompts, video modeling</li> <li>● Evaluate space to determine if it is supportive to desired behavior</li> <li>● Use concerned care and consistent phrases (e.g., "I am worried that...")</li> <li>● Practice prior to transition</li> </ul>

<p><b>Specific Verbal Encouragement</b></p>	<p>Use authentic and specifically targeted encouragement statements that emphasize what the child did such as:</p> <ul style="list-style-type: none"> <li>● "You wrote your name all by yourself"</li> <li>● "I see you used red and blue and made purple."</li> <li>● "Last week you couldn't climb across the bars and now you can."</li> <li>● "You helped rebuild her block structure and now she feels better."</li> <li>● "You told me how you feel and now I can help you solve the problem."</li> </ul>	<ul style="list-style-type: none"> <li>● Remind the child of previous success in similar situations</li> <li>● Provide specific verbal encouragement for a task or behavior being worked on by a child</li> <li>● Actively watch for opportunities to encourage positive behavior</li> <li>● Be consistent as a team in providing verbal encouragement (may use scripts)</li> <li>● List the positive choices the child made throughout the day</li> </ul>
<p><b>Ratio of Positive Statements versus Redirections or Planned Ignoring</b></p>	<p>Use positive and encouraging statements that emphasize what the child is doing such as:</p> <ul style="list-style-type: none"> <li>● "You are sitting on your mat and you are ready for group."</li> <li>● "When you heard the cleanup song, you picked up your blocks right away."</li> <li>● "You are learning so many new things."</li> <li>● "You are growing and getting stronger."</li> <li>● "You found a solution to your problem."</li> </ul>	<ul style="list-style-type: none"> <li>● Make plans for specific behaviors to look for and on which you can positively respond</li> <li>● Make plans for specific behaviors to ignore as well as which behaviors should be emerging in their place</li> <li>● Actively look for opportunities to use positive statements</li> <li>● Keep a self-tally of times positive statements are used</li> </ul>
<p><b>Acknowledgement System</b></p>	<ul style="list-style-type: none"> <li>● Use acknowledgement versus praise</li> <li>● Be specific to the child's behavior</li> <li>● Be mindful of 'less is best' and keep the language simple</li> </ul>	<ul style="list-style-type: none"> <li>● Use specific scripts for all teachers to say the same thing about targeted behaviors</li> <li>● Use a teacher-designed reminder system when needed</li> <li>● Acknowledge student task completion</li> </ul>

## Discussion

Empathetic, instructional, and caring contacts with children are necessary for helping children develop prosocial and desirable classroom behaviors (e.g. "You helped rebuild her block structure and now she feels better") and internalize attributions to their own efforts (e.g. "When you heard the cleanup song, you picked up your blocks right away"). Teacher responses to children's behaviors and proactive approaches to guidance need to be contemplated and intentional, but it is not necessarily using a range of tangible or social reinforcers often advocated for in behaviorist literature, especially within Tier I interventions. Consistent with the development of executive functions, teachers grounded their responses within a developmentalist view that children learn to regulate their thoughts and behavior over time. Instruction and practice are key strategies for enhancing working memory, inhibiting responding to inappropriate situations, and cognitive flexibility (Bjorklund & Causey, 2018). As constructivists in the Arlitt Child Development Center's high performing classrooms, the rejection of stickers and praise in favor of teaching and scaffolding self-control and problem solving is a pedagogical norm. Within these constructivist classrooms, the experience of competence and being able to control aspects of his or her environment is a child's right that teachers facilitate and scaffold.

## Conclusion

Intentional universal designs for learning, modification of the environment as needed, and the use of scripts to address challenging behaviors, when warranted by individual need or the classroom ecology, demonstrate one way to implement blended practice in early childhood education. The manner in which the Arlitt Child Development Center teachers addressed the Tier I Child Support Framework is an eco-constructivist model of blended practice that values child agency and is respectful of children's abilities to self-regulate their own behaviors. This is appropriate for the cultural context within most early childhood programs in the USA. Clearly then, within the scope of Tier I PBIS, a goal is to determine if a more comprehensive and intensive intervention is needed for persistent and at-risk behaviors. In Tier II interventions that require more structure and intensity with regard to one to one child interactions, the impact of exhibited challenging behaviors on the classroom ecology may manifest the need for extra supports that are more behavioral in approach. This will ensure that all children within the classroom enjoy a positive learning environment. However, within Tier I, perhaps PBIS should read Positive Behavioral and *Instructional* Supports as this would better reflect an eco-constructivist's point of view.

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## Differences by Economic Status in Grade 3 Reading Performance: A Texas Multiyear Study

By Jenny A. M. McGown\* & John R. Slate†

In this investigation, differences in the reading performance as a function of degree of economic disadvantage for Texas Grade 3 students were examined. Data were obtained from the Texas Education Agency on all Texas Grade 3 students for the 2012-2013, 2013-2014, and 2014-2015 school years. In all analyses, statistically significant differences, with small to moderate effect sizes, were present in reading performance, as measured by the State of Texas Assessment of Academic Readiness, by student economic status. For all three Reading Reporting categories, a "stair-step of achievement effect" was present in that the greater the degree of poverty the lower student reading scores were. Analyses of passing standards revealed a similar pattern in that the greater the degree of poverty, the less likely students were to meet the passing standard. Suggestions for future research and implications for policy and practice were made.

*Keywords:* economically disadvantaged, literacy, reading skills, STAAR, Texas.

### Introduction

With more children living in poverty in the United States today than during the Great Depression (Potter, 2015), the academic performance of these children and their ability for upward social mobility should be of utmost importance. As a nation, education historically has been hailed as the great equalizer, the vehicle of democracy driving the attainment of the American Dream. Yet repeatedly, researchers (e.g., Hagans & Good, 2013; Reardon, 2013; Saez, 2012) have revealed an ever-widening gap in academic success between students in poverty and students who are not in poverty. This "income inequality gap" (Reardon, Valentino, & Shores, 2012, p. 29) has now surpassed historical racial achievement gaps, increasing to the point that family income is now the best predictor of a child's academic success.

This reality appears in the results of standardized testing, particularly as it pertains to student literacy, a fundamental life skill needed for success (Reardon, 2013). As with grades, graduation rates, college admission, and degree completion, students from higher economic status groups outperform students from lower economic status groups on standardized assessments (Lee & Slate, 2014). To provide a foundation for the reader, some of the research related to the disparities in student achievement of students in poverty, particularly as it pertains to literacy, is summarized briefly here.

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### **Literacy and Reading Skills**

To begin, the complexity of the word *literacy* and what it means to be literate involves a broad spectrum of definitions. For purposes of this study, literacy is defined as "the ability to access, evaluate, and integrate information from a wide range of textual sources" (Reardon, Valentino, & Shores, 2012, p. 18) and encompasses a complex set of skills (i.e., phonological, comprehension, analysis) that students acquire most rapidly during the elementary and middle school years (Reardon, Valentino, & Shores, 2012). To meet minimum requirements on state assessments, student must demonstrate basic reading skills (Garcia & Cain, 2014).

In Texas, reading skills are defined across the three reporting categories of the State of Texas Assessment of Academic Readiness (STAAR) Reading exam in Grade 3. Students' ability to demonstrate basic reading understanding across genres (i.e., fiction, poetry, drama, literary non-fiction, expository, persuasive) by determining "the meaning of grade-level academic words in English, using context to determine the meaning of unfamiliar words, and comparing and contrasting themes or moral lessons" is assessed in Reporting Category 1 (Texas Education Agency Student Assessment Division, 2011, para. 3). In Reporting Category 2, students must demonstrate the ability "to comprehend and analyze literary texts (i.e. fiction, poetry, drama, literary nonfiction) for elements such as foreshadowing, character development, sensory detail, and figurative language" (Texas Education Agency Student Assessment Division, 2011, para. 4). For Reporting Category 3, students must be able "to comprehend and analyze informational texts (i.e. expository, persuasive) by demonstrating the ability to summarize the main idea and supporting details, analyze organizational patterns and text features, and make logical connections between ideas and across texts" (Texas Education Agency Student Assessment Division, 2011, para. 5). As previously noted, the acquisition of these basic reading comprehension and analysis skills is foundational for individual success not only in school but also for future economic success (Stinnett, 2014). As such, questions remain regarding the degree of literacy students have and the extent to which disparities exist by economic status.

### **Economic Disadvantage**

Inequities in the income achievement gap have grown increasingly over the last several decades. To determine the extent by which income-related achievement gaps increased or decreased over time, Reardon (2013) examined the relationship between family income and student achievement over the last 50 years in the United States. In his analysis of 12 nationally representative studies, the reading achievement gap by socioeconomic status began to grow in the mid-1970s and had widened approximately 40% since that time. Additionally, Reardon (2013) revealed that although the racial inequality gap has decreased over time, economic inequality has reached "historic highs" (2013, p. 12).

Sadly, the economic achievement gap widens almost immediately from birth, as students from low-income families lack academic opportunities and rigor in the early years and are more likely to be raised in an information-poor environment with limited exposure to after-school and summer enrichment programs (Burney & Beilke, 2008). The result is not only large achievement gaps evident when students enter Kindergarten, but achievement gaps that widen incrementally over time. Subsequently, Reardon (2013) purported that narrowing the inequality gap must be a joint effort between schools and policy makers, and that more financial and human capital should be expended for early intervention during the primary school years.

Along these lines, Hagans and Good (2013) conducted a study to determine the influence of early literacy intervention on reading skills of students from affluent and poor economic backgrounds. In their examination of 75 Grade 1 students from three different elementary schools, both economic status and student instructional group were examined in relation to oral reading fluency skills. Statistically significant differences were revealed between students who were at or below the poverty line and those students from middle or high economic backgrounds. Students from a low economic background were determined to be at a disproportionately increased risk for reading problems even after targeted instructional intervention (Hagans & Good, 2013).

Similarly, Reardon, Valentino, & Shores (2012) revealed an increase in the performance gap as a function of economic status when examining how well students in the United States read. In an analysis of data from national and international literacy assessments, literacy skills varied tremendously among student groups by race, ethnicity, and socioeconomic status. Although gaps in racial and ethnic disparities decreased over the last 40 years, Reardon, Valentino, & Shores, (2012) discovered an increase in the performance gap for students in poverty. Black and Hispanic students entered high school three years further behind in reading than White and Asian students, yet students who were economically disadvantaged had literacy skills more than five years behind students from affluent backgrounds (Reardon, Valentino, & Shores, 2012).

Eamon (2002) analyzed data on 1,324 students between the ages of 12 and 14 in New York. An analysis of the mother/child National Longitudinal Survey of Youth (2009) was utilized to determine not only the connections between poverty and lower achievement in reading and math but also the influence of mitigating variables (e.g., stimulating home environments) affecting student success (Eamon, 2002). Consistent with other researchers (e.g., Eamon, 2002; Kornrich & Furtsenberg, 2013), students living in poverty underperformed students who were not economically disadvantaged regardless of ethnicity or race. Moreover, reading achievement correlated specifically to the cognitive home environment and the parent-to-child ratio, whereas poverty connected directly to school behavior problems (Eamon, 2002).

In a recent study in the state of interest for this investigation, Lee and Slate (2014) conducted a quantitative study of high school students in Texas to determine the extent to which differences might be present in advanced achievement in reading and math as a function of economic disadvantage. In

their analysis of the exit-level results of the Texas Assessment of Knowledge and Skills for over 150,000 students, almost 43% of the sample was students living in poverty (Lee & Slate, 2014). For the Commended Performance and the college-readiness indicator, statistically significant difference existed in both subjects. Students who were economically disadvantaged were considerably less likely to meet an advanced performance standard on the state-mandated assessments than were students who were not economically disadvantaged (Lee & Slate, 2014). The implications of this disparity in performance included potentially limited access to college admissions and the subsequent effect not only on the individuals involved but also on the economy (Lee & Slate, 2014). Recommendations for further research included an analysis of the differences that exist in advanced academic performance at other grade levels and other subject areas, as well as the relationship between teacher expectations and advanced performance of students (Lee & Slate, 2014; Wright, Slate, & Moore, 2016).

### **Statement of the Problem**

As indicated in the review of the literature, a tremendous disparity exists between the performance of students in poverty and students with more affluent circumstances. This gap in performance stems at least in part from a lack of educational resources and exposure during a child's early development prior to entering school. For example, in 2005, parents in the highest income quintile spent nearly seven times more on their child's educational enrichment and development during the formative years than did their counterparts in the lowest income quintile (Kornrich & Furtsenber, 2013). Although educators have little control over a child's initial environment, the purpose of the No Child Left Behind Act (2002) was to ensure that all students, regardless of economic status, met at least a basic proficiency level of academic readiness as a result of their education (Lee & Slate, 2014).

In Texas, this level of academic proficiency is measured by the State of Texas Assessment of Academic Readiness (STAAR) test, administered annually in reading beginning in Grade 3. Since the inception of the STAAR test in 2012, simply meeting the standard or basic level of academic proficiency has remained challenging for students, especially those students in poverty. Moreover, although in this latest accountability system the state consistently measures and monitors the performance of historically low-performing groups, little progress has been made in actually closing the income inequality gaps plaguing most schools in Texas, and across the nation for that matter, particularly with regard to literacy (Reardon, Valentino, & Shores, 2012; Wright, Slate, & Moore, 2016). In fact, despite large investments of financial and human capital, economic inequality has reached a historic high, exceeding racial inequalities in education outcomes (Saez, 2012). Furthermore, children from low economic backgrounds are at an increased risk of reading problems (Hagans & Good, 2013). For example, although revealed in a report from the National Assessment

of Educational Progress were modest improvements in the overall proficiency of all students in reading from 2009 to 2013, merely 17% of 4th graders who were economically disadvantaged scored at or above proficient in reading (Stinnett, 2014). As children move through the education system, unfortunately things appear even bleaker, as students from low-income families enter high school with average literacy skills five years behind the literacy skills of high-income students (Stinnett, 2014). Not only should these outcomes alarm educators from the standpoint of equality and social justice, these disparities should concern all citizens in a democratic society and global economy. A concerted effort is necessary to ensure all students learn at high levels and to close quickly this ever-widening gap; the American Dream—through hard work and education even people of modest means can mobilize above their initial economic class—may remain just that, a dream.

### **Purpose of the Study**

Given the moral imperative to ensure equality in all realms of society and the importance placed on high levels of learning for all students, including those students who are economically disadvantaged, as stated by the No Child Left Behind Act (2002) and measured by the State of Texas annually, an examination of the current economic achievement gap with regard to literacy is paramount. The purpose of this study was to determine the extent to which differences are present for Texas elementary school students in Grade 3 in their STAAR Reading performance as a function of degree of economic disadvantage. Results from Grade 5 were not analyzed because students in this grade level are required to participate in the Texas Student Success Initiative, and therefore do not receive multiple opportunities to demonstrate mastery of the assessed skills (Texas Education Agency, 2016b). By analyzing the differences in performance among students who are extremely poor, moderately poor, and not poor during the formative years of STAAR testing, educators may be able to determine an effective response for early intervention in closing the economic achievement gap.

### **Significance of the Study**

Clearly, a large body of research (e.g., Eamon, 2002; Kornrich & Furtsenberg, 2013; Lee & Slate, 2014; Saez, 2012) has already been conducted regarding the presence of direct connections between academic achievement and economic status. Many empirical investigations are available concerning disparities in literacy rates nationally and internationally as a function of poverty. Few researchers, however, have focused their efforts on the relationship between poverty and literacy in the formative elementary school years as measured by the recently developed State of Texas Assessment of Academic Readiness. Furthermore, an analysis of the relationship between degrees of economic

disadvantage and reading performance has not been examined to date. By analyzing the differences in the performance of students who qualified for reduced lunch (e.g., moderately poor) and those students who qualified for free lunch (e.g., extremely poor), the gradation of student poverty and its relationship to reading skills acquisition can be revealed. The findings of this study may have practical applications for educational leaders such as principals, literacy coaches, and classroom teachers—particularly at the elementary level in Texas—in ensuring all students become literate regardless of degrees of economic disadvantage. By determining the relationship between the depth of student poverty and the likelihood of the student achieving the basic reading proficiency, educators could direct quality early interventions to students in a timely and effective manner. As a result of these findings, state and district level policymakers could develop a comprehensive strategy to close the economic achievement gap.

### **Research Questions**

The following overarching research question was addressed in this empirical investigation: What is the difference in the reading performance of Texas elementary school students in Grade 3 as a function of degree of economic status (i.e., Not Economically Disadvantaged, Moderately Poor, and Extremely Poor) for the 2012-2013 school year? Specific sub questions under this overarching research question were: (a) What is the difference in understanding across genres of Texas elementary school students in Grade 3 as a function of degree of economic status for the 2012-2013 school year?; (b) What is the difference in comprehension and analysis of literary texts of Texas elementary school students in Grade 3 as a function of degree of economic status for the 2012-2013 school year?; (c) What is the difference in comprehension and analysis of informative texts of Texas elementary school students in Grade 3 as a function of degree of economic status for the 2012-2013 school year?; (d) What is the effect of economic status on the Level II Final Satisfactory reading performance for Grade 3 students?; and (e) What is the extent to which a trend is present in reading skills of Texas elementary school students in Grade 3 as a function of degree of economic status for the 2012-2013 through the 2014-2015 school years? The first four research questions were repeated for the 2012-2013, 2013-2014, and 2014-2015 school years, whereas the fifth research question was repeated for the three reading objectives. Thus, 37 research questions comprised this investigation.

### **Method**

#### **Research Design**

For this article, the research design utilized was an explanatory longitudinal

investigation (Johnson, 2001). Archival data were used in examining past assessment results. The individual variables had already occurred and extraneous variables were not controlled in this study design (Johnson & Christensen, 2012). Accordingly, the independent variable in this research article was the degree of economic disadvantage and the three dependent variables were the STAAR Reading Grade 3 scores in the three reading objectives and the Level II Final Satisfactory Performance Standard for the 2012-2013 through the 2014-2015 school years.

### **Participants**

Archival data were obtained for the 2012-2013 through the 2014-2015 school years from the Texas Education Agency Public Education Information Management System for all students who took the STAAR Reading assessments in Grade 3. Although the STAAR Reading exam is also administered in Grades 4 and 5, the STAAR Reading exam in Grade 3 is the first opportunity to gauge mastery of student reading skills in a standardized summative assessment. A Public Information Request form was submitted previously to obtain these data for an Advanced Statistics course.

For the purpose of this article, the degree of economic disadvantage was defined based on the eligibility criteria outlined by the Texas Education Agency. Eligibility for free meals necessitates family income of 130% or less of the federal poverty line, whereas eligibility for reduced-price meals requires family income of 131% to 185% of the federal poverty line (Burney & Beilke, 2008). This delineation of economic status was defined as follows: Extremely Poor (i.e., those students who qualify for the federal free-lunch program), Moderately Poor (i.e., those students who qualify for federal reduced-lunch program), and Not Economically Disadvantaged (i.e., those students who did not qualify for the federal free- nor reduced-lunch program).

### **Instrumentation**

Scores from the STAAR Reading assessment for students in Grade 3 were analyzed. The STAAR Reading test measures student mastery of three reporting categories. Reporting Category 1 is a measure of a student's ability to understand and analyze a variety of texts across reading genres and contains six multiple choice items (Texas Education Agency Student Assessment Division, 2011, p. 2). Reporting Category 2 is a measure of a student's ability to understand and analyze literary texts and contains 18 multiple choice items (Texas Education Agency Student Assessment Division, 2011, p. 3). Reporting Category 3 is a measure of a student's ability to understand and analyze informational texts and contains 16 multiple choice items (Texas Education Agency Student Assessment Division, 2011, p. 4). In the previously discussed research questions, Reporting Category 1 constituted the dependent variable in the first research question, Reporting Category 2 constitutes the dependent variable in the second research question, and Reporting Category 3 is the dependent variable in the

third research question.

Within each reporting category are Readiness Standards and Supporting Standards that assess grade level content as defined by the Texas Essential Knowledge and Skills (TEKS). Readiness Standards vary for each grade level but are characterized by being "essential for success" in the current grade level and "important for preparedness" for the next grade level by addressing significant content and concepts (Texas Education Agency STAAR Performance Standards, 2013, p. 26). Supporting Standards are those "more narrowly defined" content and concepts that are introduced in the current grade level and prepare students for the next grade level but are not critical to master in the current grade level (Texas Education Agency STAAR Performance Standards, 2013, p. 26). Additionally, students are expected to demonstrate "a flexible range of metacognitive reading skills in both assigned and independent reading to understand an author's message... as they become self-directed, critical readers" by being assessed in their mastery of Figure 19, a TEKS process standard, across the three Reporting Categories (Texas Education Agency Student Assessment Division, 2011, p. 4). Readers are directed to the Texas Education Agency website for information regarding the score validity and score reliability of the STAAR Reading assessment.

## Results

Prior to conducting any inferential statistical procedures, the underlying assumptions of the multivariate analysis of variance (MANOVA) procedure were checked. Specifically examined were data normality, Box's Test of Equality of Covariance and the Levene's Test of Equality of Error Variances. Although the majority of these assumptions were not met, the robustness of a MANOVA procedure made it appropriate to use on the data in this study (Field, 2009).

Results of statistical analyses for students who were Extremely Poor, Moderately Poor, and Not Poor will be described by Reading Reporting Category. As mentioned previously, the STAAR Reading Reporting Categories are as follows: (a) Reporting Category 1: understanding and analysis across genres; (b) Reporting Category 2: understanding and analysis of literary texts; and (c) Reporting Category 3: understanding and analysis of informational texts. Results will be presented in chronological order beginning with the 2012-2013 school year and concluding with the 2014-2015 school year.

### Overall Results for the Three School Years

With respect to the 2012-2013 school year, the MANOVA revealed a statistically significant overall difference, Wilks'  $\Lambda = .88$ ,  $p < .001$ , partial  $\eta^2 = .06$ , in reading performance as a function of economic status. Using Cohen's (1988) criteria, the effect size was moderate. Concerning the 2013-2014 school year, the MANOVA revealed a statistically significant difference, Wilks'  $\Lambda =$

.88,  $p < .001$ , partial  $\eta^2 = .06$ , in overall reading performance as a function of economic status. Using Cohen's (1988) criteria, the effect size was moderate. Regarding the 2014-2015 school year, the MANOVA revealed a statistically significant difference, Wilks'  $\Lambda = .90$ ,  $p < .001$ , partial  $\eta^2 = .05$ , in overall reading performance as a function of economic status. Using Cohen's (1988) criteria, the effect size was moderate. Statistically significant differences were revealed in all three school years in the overall reading skills for the three groups of students (i.e., Extremely Poor, Moderately Poor, and Not Economically Disadvantaged). The effect sizes for all three school years were reflective of a moderate degree of practical meaningfulness.

### **Results for Reading Reporting Category 1: Understanding and Analysis across Genres**

For each of the three school years, univariate follow-up analysis of variance (ANOVA) procedures yielded statistically significant differences in student performance on the STAAR Reading Reporting Category 1. For the 2012-2013 school year, a statistically significant difference was revealed,  $F(1, 42039) = 17987.20$ ,  $p < .001$ , partial  $\eta^2 = .10$ , moderate effect size. For the 2013-2014 school year, a statistically significant difference was yielded,  $F(1, 41523) = 17968.29$ ,  $p < .001$ , partial  $\eta^2 = .09$ , moderate effect size. Finally, for the 2014-2015 school year, a statistically significant difference was revealed,  $F(1, 32690) = 13151.00$ ,  $p < .001$ , partial  $\eta^2 = .07$ , moderate effect size. Effect sizes were moderate for all three school years on the STAAR Reading Reporting Category 1.

To determine which pairs of student groups differed from each other in their Reading Reporting Category performance, Scheffe' post hoc procedures were conducted. These post hoc procedures revealed that statistically significant differences were present by degree of economic disadvantage for all three school years for Reporting Category 1. Of the six questions on the assessment contained in this reporting category, a stair-step effect (Carpenter, Ramirez, & Severn, 2006) was present for Reporting Category 1 in that the greater the degree of poverty the lower the Reading Reporting Category 1 score was. That is, students who were Extremely Poor scored statistically significantly lower on the Reading Reporting Category 1 than did students who were Moderately Poor, and students who were Moderately Poor scored statistically significantly lower than did students who were Not Poor. Readers are referred to Table 1 for the descriptive statistics for students' Reading Reporting Category 1 scores by their degree of economic status for each of the three school years.

Table 1. Descriptive Statistics for the STAAR Grade 3 Reporting Category 1 Scores by Economic Status for the 2012-2013, 2013-2014, and 2014-2015 School Years

School Year and Economic Status	n	M	SD
<i>2012-2013</i>			
Not Poor	138,884	4.73	1.40
Moderately Poor	24,729	4.14	1.55
Extremely Poor	177,686	3.70	1.62
<i>2013-2014</i>			
Not Poor	140,570	4.85	1.36
Moderately Poor	25,772	4.27	1.54
Extremely Poor	180,170	3.83	1.63
<i>2014-2015</i>			
Not Poor	148,996	4.51	1.49
Moderately Poor	24,785	4.00	1.58
Extremely Poor	184,369	3.62	1.64

### Results for Reading Reporting Category 2: Understanding and Analysis of Literary Texts

For each of the three school years, univariate follow-up ANOVA procedures yielded statistically significant differences in student performance on STAAR Reading Reporting Category 2. Statistically significant differences were revealed for the 2012-2013 school year,  $F(1, 207639) = 14136.76$ ,  $p < .001$ , partial  $\eta^2 = .09$ , moderate effect size; for the 2013-2014 school year,  $F(1, 257563) = 19868.95$ ,  $p < .001$ , partial  $\eta^2 = .10$ , moderate effect size; and for the 2014-2015 school year,  $F(1, 253314) = 16910.17$ ,  $p < .001$ , partial  $\eta^2 = .09$ , moderate effect size. Effect sizes were moderate for all three school years on the STAAR Reading Reporting Category 2.

Scheffe' post hoc procedures revealed that statistically significant differences were present by degree of economic disadvantage for all three school years for Reading Reporting Category 2. Of the 18 questions on the assessment contained in this reporting category, a stair-step effect (Carpenter, Ramirez, & Severn, 2006) was present for Reading Reporting Category 2 in that the greater the degree of economic disadvantage the lower students' reading scores were. That is, students who were Extremely Poor scored statistically significantly lower on the Reading Reporting Category 2 than students who were Moderately Poor, and students who were Moderately Poor scored statistically significantly lower than students who were Not Poor. Delineated in Table 2 are the descriptive statistics for students' STAAR Reading Reporting Category 2 scores by degree of economic disadvantage for each of the three school years.

Table 2. Descriptive Statistics for the STAAR Grade 3 Reporting Category 2 Scores by Economic Status for the 2012-2013, 2013-2014, and 2014-2015 School Years

School Year and Economic Status	<i>n</i>	<i>M</i>	<i>SD</i>
<i>2012-2013</i>			
Not Poor	138,884	12.71	3.37
Moderately Poor	24,729	11.39	3.59
Extremely Poor	177,686	10.41	3.75
<i>2013-2014</i>			
Not Poor	140,570	13.40	3.34
Moderately Poor	25,772	11.95	3.61
Extremely Poor	180,170	11.96	3.79
<i>2014-2015</i>			
Not Poor	148,996	12.55	3.77
Moderately Poor	24,785	11.14	3.86
Extremely Poor	184,369	10.07	3.95

### Results for Reading Reporting Category 3: Understanding and Analysis of Informational Texts

With respect to each of the three school years, univariate follow-up ANOVA procedures yielded statistically significant differences in student performance on the STAAR Reading Reporting Category 3. Statistically significant differences were revealed for the 2012-2013 school year,  $F(1, 194237) = 18666.01$ ,  $p < .001$ , partial  $\eta^2 = .10$ , moderate effect size; for the 2013-2014 school year,  $F(1, 257563) = 19868.95$ ,  $p < .001$ , partial  $\eta^2 = .10$ , moderate effect size; and for the 2014-2015 school year,  $F(1, 253314) = 16910.17$ ,  $p < .001$ , partial  $\eta^2 = .09$ , moderate effect size. Effect sizes were moderate for all three school years on the STAAR Reading Reporting Category 3.

Scheffe' post hoc procedures revealed that statistically significant differences were present by degree of economic disadvantage for all three school years for Reporting Category 3. Of the 16 questions on the assessment contained in Reporting Category 3, as evident in the previous reporting category results, a stair-step effect (Carpenter, Ramirez, & Severn, 2006) was present for Reporting Category 3 in that the greater the degree of economic disadvantages the lower students' scores were evident. That is, students who were Extremely Poor scored statistically significantly lower on Reporting Category 3 than students who were Moderately Poor, and students who were Moderately Poor scored statistically significantly lower than students who were Not Poor. Readers are referred to Table 3 for the descriptive statistics for students' STAAR Grade 3 Reading scores for Reporting Category 3 and degree of economic status for each of the three school years.

Table 3. Descriptive Statistics for the STAAR Grade 3 Reporting Category 3 Scores by Economic Status for the 2012-2013, 2013-2014, and 2014-2015 School Years

School Year and Economic Status	n	M	SD
<i>2012-2013</i>			
Not Poor	177,686	11.63	3.07
Moderately Poor	24,729	10.33	3.23
Extremely Poor	177,686	9.40	3.34
<i>2013-2014</i>			
Not Poor	140,570	11.21	3.25
Moderately Poor	25,772	9.86	3.36
Extremely Poor	180,170	8.88	3.43
<i>2014-2015</i>			
Not Poor	148,996	11.70	3.26
Moderately Poor	24,785	10.46	3.35
Extremely Poor	184,369	9.48	3.46

### Overall Results for the Level II Final Satisfactory Performance Standard

Because the raw scores for each Reading Reporting Category were statistically significantly different by student economic status, a decision was made to analyze the percentage of students who met the Level II Final Satisfactory Performance Standard to gauge progress in closing achievement gaps. That is, differences in raw scores may or may not translate to differences in students meeting the performance standard in reading. Public schools in Texas are held accountable not for student raw score performance but rather on the extent to which their students meet the performance standard.

To determine whether a difference was present in the Level II Final Satisfactory Performance Standard as measured by the Grade 3 STAAR Reading test by degree of economic disadvantage, Pearson chi-square procedures were calculated. This statistical procedure was viewed as the optimal statistical procedure to use because frequency data were present for the Level II Final Satisfactory Performance Standard and for economic status. As such, chi-squares are the preferred statistical procedure when both variables are categorical (Field, 2013). In addition, with the large sample size, the available sample size per cell was more than five. Therefore, the assumptions for utilizing a chi-square were met.

Concerning the Level II Final Satisfactory Performance Standard by student economic status, the results for all three school years were statistically significant. For the 2012-2013 school year, the result,  $\chi^2(2) = 27384.79$ ,  $p < .001$ , yielded an effect size, Cramer's V, that was small, .28 (Cohen, 1988). For the 2013-2014 school year, the result was also statistically significant,  $\chi^2(2) = 31177.91$ ,  $p < .001$ . The effect size for this finding, Cramer's V, was moderate, .30 (Cohen, 1988). Similarly, for the 2014-2015 school year, the result was also statistically significant,  $\chi^2(2) = 29642.40$ ,  $p < .001$ . The effect size for this finding, Cramer's V, was moderate, .30 (Cohen, 1988). Effect sizes for these analyses were small for one school year and moderate for two school years.

As revealed in Table 4, for all three school years, a stair-step effect (Carpenter, Ramirez, & Severn, 2006) was present. Higher percentages of students who were Not Poor met this Level II Final Satisfactory Performance Standard in all three school years than did students who were Moderately Poor and students who were Extremely Poor. The difference in percentages between the Not Poor and the Moderately Poor groups of students not meeting the standard was 18.9%, 19.4%, and 18.9% for the three school years, respectively. Students who were Not Poor achieved the standard more frequently than those students who were Moderately Poor, and students who were Moderately Poor outperformed students who were Extremely Poor. Moreover, the largest gap in meeting the performance standard occurred between students who were Not Poor and students who were Extremely Poor with a difference in percentage of students not meeting the passing standard occurring 28.8%, 30.9%, and 29.3% for the three school years, respectively. Similarly, students who were Not Poor were by far the most likely to meet the Level II Final Satisfactory Performance Standard in the 2012-2013, 2013-2014, and 2014-2015 school years than were students who were Moderately Poor or Extremely Poor. Table 4 contains the descriptive statistics for these analyses.

*Table 4.* Frequencies and Percentages for the Grade 3 STAAR Reading Level II Satisfactory Performance Standard by Degree of Economic Disadvantage for the 2012-2013, 2013-2014, and 2014-2015 School Years

<b>School Year and Economic Status</b>	<b>Met Standard</b>		<b>Did Not Meet Standard</b>	
	<i>n</i>	%	<i>n</i>	%
<i>2012-2013</i>				
Not Poor	79,205	56.5	60,884	43.5
Moderately Poor	9,394	37.6	15,567	62.4
Extremely Poor	49,781	27.7	130,106	72.3
<i>2013-2014</i>				
Not Poor	85,048	60.0	56,759	40.0
Moderately Poor	10,579	40.6	15,451	59.4
Extremely Poor	53,066	29.1	129,328	70.9
<i>2014-2015</i>				
Not Poor	80,959	54.8	66,656	45.2
Moderately Poor	8,944	36.4	15,595	63.6
Extremely Poor	46,348	25.5	135,331	74.5

## Discussion

The extent to which differences were present in the reading performance of Texas elementary school students by their economic status was examined in this investigation. Three years of statewide data on the three Grade 3 STAAR Reading Reporting Categories were analyzed for three different student groups: Not Poor, Moderately Poor, and Extremely Poor. In all three school years, statistically significant results were present. Following these statistical analyses,

the presence of trends for the three reading performance reporting categories by degree of student economic status was determined. Results will be summarized in the next section.

### Reading Reporting Category 1: Understanding and Analysis across Genres

Reading Reporting Category 1 contained six questions on the Grade 3 STAAR Reading assessment during each of the 2012-2013 through 2014-2015 school years. Students who were Not Poor scored 0.51 to 0.59 points higher on the Reading Reporting Category 1 than students who were Moderately Poor during the 2012-2013 through the 2014-2015 school years. Students who were Moderately Poor had an average score that was 0.38 to 0.44 points higher on the Reading Reporting Category 1 than students who were Extremely Poor.

To determine the magnitude of the difference between the average scores for the two groups of students in poverty (i.e., Moderately Poor and Extremely Poor) for each school year, a Cohen's  $d$  was calculated between the Not Poor group and the Moderately Poor group and between the Not Poor group and the Extremely Poor group for Reading Reporting Category 1. The array of the Cohen's  $d$  calculations ranged from a low of 0.33 (moderate effect size) to a high of 0.68 (moderate effect size). The average Cohen's  $d$  was 0.51 (moderate effect size) for the three school years of data analyzed. Readers are referred to Table 5 for the Cohen's  $d$  effect size calculations.

Table 5. Cohen's  $d$ s for Economic Status Differences in STAAR Grade 3 Results by Reporting Category for the 2012-2013 through the 2014-2015 School Years

School Year and Economic Status	Reporting Category 1 $d$	Reporting Category 2 $d$	Reporting Category 3 $d$
2012-2013			
Moderately Poor	0.40	0.38	0.41
Extremely Poor	0.68	0.64	0.69
2013-2014			
Moderately Poor	0.40	0.42	0.41
Extremely Poor	0.68	0.72	0.70
2014-2015			
Moderately Poor	0.33	0.37	0.38
Extremely Poor	0.57	0.64	0.66

### Reading Reporting Category 2: Understanding and Analysis of Literary Texts

Reading Reporting Category 2 contained 18 questions on the STAAR Grade 3 Reading assessment during each of the 2012-2013 through 2014-2015 school years. Students who were Not Poor scored higher on Reading Reporting Category 2 than students who were Moderately Poor during the 2012-2013 through the 2014-2015 school years. Students who were Moderately Poor scored higher on Reporting Category 2 than students who were Extremely Poor. To determine the magnitude of the difference between the average scores for these

three groups of students for each school year, a Cohen's  $d$  was calculated for each school year for Reading Reporting Category 2. The array of the Cohen's  $d$  calculations ranged from a low of 0.37 (small effect size) to a high of 0.72 (moderate effect size). The average effect size was 0.53 (moderate effect size) for the three years of data analyzed. Readers are referred to Table 5 for the Cohen's  $d$  effect size calculations for the STAAR Reading Reporting Category 2.

### **Reading Reporting Category 3: Comprehension and Analysis of Informational Texts**

Reading Reporting Category 3 contained 16 questions on the STAAR Grade 3 Reading assessment during each of the 2012-2013 through 2014-2015 school years. Students who were Not Poor scored higher on Reading Reporting Category 3 than students who were Moderately Poor during the 2012-2013 through the 2014-2015 school years. Students who were Moderately Poor scored higher on Reporting Category 3 than students who were Extremely Poor. To determine the magnitude of the difference between the average score for these three groups of students for each school year, a Cohen's  $d$  was calculated for each school year for Reading Reporting Category 3. The array of the Cohen's  $d$  calculations ranged from a low of 0.38 (small effect size) to a high of 0.70 (moderate effect size). The average effect size was 0.54 (moderate effect size) for the three years of data analyzed. Readers are referred to Table 5 for the Cohen's  $d$  effect size calculations for the STAAR Reading Reporting Category 3.

### **Overall Results for the Level II Final Satisfactory Performance Standard**

Consistent with other research studies (e.g., Reardon, 2013; Stinnett, 2014; Wright & Slate, 2015) regarding the economic achievement gap, Texas students living in poverty or near-poverty conditions did not perform as well as their peers. At the first opportunity for student performance to be measured by the State of Texas Assessment of Academic Readiness in reading in Grade 3, statistically significant performance gaps by economic status occurred. A stair-step effect (Carpenter, Ramirez, & Severn, 2006) was present both across reporting categories and the passing standard in that the achievement gap in performance increased the greater the degree of poverty. Additionally, reading achievement was the poorest for students who were Extremely Poor for all three school years.

### **Connection with Existing Literature**

When examining reading performance, poverty definitely matters (Reardon, Valentino, & Shores, 2012); the greater the degree of student poverty, the lower students' scores were, both by reporting category raw score and the overall percentage of students meeting the Level II Final Satisfactory Performance Standard. This difference in performance can be attributed in part to the fact

that students from low-income families lack academic opportunities and rigor in the early years and are more likely to be raised in an information-poor environment with limited exposure to after-school and summer enrichment programs (Burney & Beilke, 2008). The implications of this disparity in performance include potentially limited access to college admissions and the subsequent effect not only on the individuals involved but also on the economy (Lee & Slate, 2014). Results of this research investigation are consistent with the outcomes of other researchers (Eamon, 2002; Kornrich & Furtsenber, 2013; Lee & Slate, 2014; Saez, 2012) who noted the presence of lower reading achievement scores among students who are economically disadvantaged when compared to students who are not economically disadvantaged.

### **Implications for Policy and Practice**

Clearly, economic disadvantage has a negative influence on literacy and reading performance on standardized assessments, as demonstrated by this longitudinal investigation in which STAAR Reading scores were analyzed. Despite concerted efforts for decades at the local, state, and federal level to address and close this gap, the gap sadly persists. This disparity in performance indicates the need for further collaborative efforts on behalf of policymakers and educators to close the achievement gap.

Certainly efforts have been made to provide additional funding to schools with a total student enrollment of over 40% of students who meet the definition of poverty (U.S. Department of Education, 2014, para. 5). That is, over 6,000 of the nearly 8,400 campuses in Texas receive some federal funding to assist students who are identified as economically disadvantaged (Education Bug, 2015). Additionally, state compensatory funds are available to students who are identified as "at-risk" in order to provide additional supports such as an increased instructional time and targeted intervention (Texas Education Agency, 2016). However, given the rigorous academic standards students in Texas public schools are held to in a funding system recently acknowledged by the state Supreme Court as "undeniably imperfect, with immense room for improvement" (Collier, 2016, para. 6), the funding system obviously needs further attention and modifications to improve learning outcomes for Texas students, especially those students living in poverty.

Furthermore, as students in poverty demonstrate poorer reading skills immediately upon matriculation, federally funded programs such as Head Start and full-day Pre-Kindergarten are essential to providing foundational early literacy skills and preventing the widening of the achievement gap (Kornrich & Furtsenber, 2013). Additionally, high poverty schools have a higher concentration of inexperienced teachers (Haycock & Crawford, 2008), who may not be as skilled in teaching reading and thereby further contribute to literacy gap. Teachers of all experience levels could benefit from the support of a Literacy Coach on staff to provide additional modeling and support of research-based best practices (Matsumura, Garnier, Correnti, Junker, & Bickel, 2010). School districts should also regularly provide quality professional

development on literacy practices, as solid reading skills are foundational to success in all other academic subjects and life beyond graduation. Subsequently, educators and policymakers should work collaboratively to ensure additional resources and targeted interventions are allocated to students of poverty, and even more so to those students qualifying for free lunch, so that foundational skills are established during the elementary school years prior to moving on to secondary and higher education.

### **Recommendations for Future Research**

Commensurate with other researchers (e.g., Lee & Slate, 2014; Reardon, 2013; Reardon, Valentino, & Shores, 2012), the disparity in performance of students who were economically disadvantaged, and particularly those students who were extremely poor, was revealed by the large sample size represented in this study of over 358,150 students. Revealed in a study of this scale once more is the inequality in overall reading performance and literacy as a result of the degree of economic status. These results further indicate the need for targeted intervention and remediation as soon as students enter school (Hagans & Good, 2013). As evidenced in the results from this multiyear investigation, a gap in achievement was already present at the first opportunity for standardized assessment by the state in third grade. This gap in achievement is cause for concern because should it continue as students are promoted through the school system, students living in poverty, especially those students qualifying for free lunch, may ultimately be at higher risk for lower high school completion rates, inequitable access to college admissions, and inability to compete well for high-earning jobs against students from more affluent backgrounds (Lee & Slate, 2014).

Due to the recent development and implementation of the State of Texas Assessment of Academic Readiness program and therefore the limited longitudinal data available for analysis, further research is recommended in the future to examine the uniformity of the performance gap over time as measured by this standardized assessment. Additionally, researchers should examine other grade level data at the elementary school level to determine whether or not the gap closes as students are promoted in the system, as well as extend the examination to students in high school who must meet the passing standard in order to graduate. The study of student performance in other states where state-mandated assessments occur could also contribute meaningfully to this body of research. Other questions that could be explored in future research related to the performance of students in Texas include (a) What differences exist in student Level III Advanced Performance for STAAR Reading and other STAAR-tested subjects (e.g., writing and science) by degree of economic disadvantage?; (b) What differences exist in student performance in Reading in other grades (i.e., Grades 4 through 8 and high school End of Course exams)?; and (c) Which early interventions in schools effectively narrow the economic achievement gap between students in poverty and those with more affluent family incomes? Quantitative, qualitative research, and mixed methods studies

need to be conducted to address these questions. Results from such investigations could provide meaningful data to inform the practice of educational leaders and policymakers.

### Conclusion

The purpose of this research study was to determine the extent to which differences were present in the reading performance of Texas elementary school students as a function of their economic status. After obtaining and analyzing three school years of Texas statewide data, statistically significant differences were revealed in the reading achievement of students who were Not Poor, Moderately Poor, and Extremely Poor. In each school year between 2012-2013 and 2014-2015, the average STAAR Grade 3 reading scores revealed a stair-step effect (Carpenter Ramirez, & Severn, 2006) in that students who were Not Poor performed better than students who were Moderately Poor, and those students who were Moderately Poor performed better than those students who were Extremely Poor. Consistent with previous researchers (e.g., Eamon, 2002; Kornrich & Furtsenberg, 2013; Lee & Slate, 2014; Saez, 2012), students who were not economically disadvantaged outperformed students who were economically disadvantaged when reading performance was measured on the Grade 3 STAAR Reading exam. These results are cause for concern, particularly given the large numbers of Grade 3 students in Texas who met the poverty guidelines.

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# **I Feel Good at School! Reducing School Discomfort Levels through integrated Interventions**

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Early school leaving is a real social emergency across Europe. Literature and field experience show that the factors leading to the decision to drop out of school are different: family problems, economic distress, territorial discomfort. In addition, there are individual characteristics such as: psychological dimensions, ease/difficulty of learning, ability/disability that may contribute to the rejection and to the school resistance, generating perception of inadequacy and failure. The school, in the short term, cannot affect in a profound way on non-school factors, but it can provide a positive atmosphere at school, allowing children to grow up in a serene environment, where relationships are proposing and stimulating. Aiming to make students feel comfortable at school is a way to diminish their risk to drop out. In this way, "going to school" becomes a choice "to feel well" and not a compulsory requirement. The NoOut project, which is presented here, was created with the main objective to model interventions for recovery and development, to be held during school hours, designed to prevent school dropout from primary school. The actions combine synergistically a teaching of basic skills, guidance, reading aloud (teaching of skills, direct experience, deployment of stimulating and engaging learning environments, personal narratives, narrative guidance paths, narrative training, and educational gaming). This article analyses the results outlined through the TVD test (discomfort evaluation test), which presents a drop on test outcome (that means reduction of risk of school dropout) for the first cycle of education in the first year of the NoOut project. The TVD is a tool that can provide a representation of the perceived school discomfort levels at individual and group level.

*Keywords:* active learning, early school leaving, drop-out, discomfort, distress perceived.

## **Introduction**

The human being lives within a network of relationships. The type and quality of relationships affect the functioning of the person himself and the methods of learning which will be able to put in place. This may mean that a situation of distress at school is not to be considered an exclusive problem of the student, but a difficult condition that involves all the players in the system of which the boy is part (Batini & Benvenuto, 2016). The family distress, the

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economic one and the territorial one represent, for example, external factors that facilitates early school leaving. However, school can intervene appropriately from the inside, avoiding the onset of fatalistic attitudes towards the supposed inevitability of the dispersion for those coming from certain contexts, such as socio-cultural disadvantages, suburbs, poor cultural context etc (Batini & Bartolucci, 2016).

The aim of this paper is to document research actions and results of an action research project we implemented in an Italian region (Tuscany), with a percentage of early school leavers between 17.6% - 18.6% against an EU average of 12.8%, and involved 5 Educational Institutions and 4 training agencies between Arezzo and Florence.

The project called NoOut, of which the Ente Cassa di Risparmio di Firenze is the leader and funder in collaboration with the University of Perugia, ISFOL and Pratika Nausika associations of Arezzo, has set itself the goal of understanding the causes of school dropouts in order to model tools and intervention actions. Areas of research-action focus is both on skills levels and on the levels of well-being at school. The two areas, inevitably and strongly interrelated, foresaw systemic actions. The No Out project was born in order to promote the educational success for all, attaching great importance to the activation, to the leadership and to the welfare of students in school, posing as intervention actions - in addition to the development, rehabilitation and consolidation of basic skills - a narrative approach paths training and reading aloud that facilitate a functional emotional climate activation of the learning group. All this in the awareness of the complexity of the problem and in the need for complex answers (the project also included the training of teachers, educational consulting actions for teachers of experimental classes and meetings with families). "Only if the boy and the problem of his discomfort are considered through a comprehensive approach you can capture the complexity with which it is certainly structured the problem. Conversely, focusing on one factor, such as the socio-cultural one, rather than on those relating to the educational institution, or on the individual or family ones, seemed like an operation strongly marked by reductionist values. [...] Removing a problem or an organisation into its parts may not give us the idea of how it works and of its identity. The fact that the sum of the parts is different from the whole is an idea that, borrowed from the first cybernetics, appeared to be particularly useful in our work" (Mancini & Gabrielli, 2012, p.18).

Comparative research in literature, experiences of the teachers at school and interviews with dropouts (Batini, 2014) have revealed new factors with respect to the experience of discomfort training, factors that are strongly related to the decision to drop out of school.

Foreigners are growing among young people most at risk (OECD, 2015). Territorial mobility, residential instability, language problems are relevant factors in determining the educational experience. However, among the profiles of dropout children emerge even young people from families of Italian origin, with no serious economic problems, and often wealthy, but where the parents are not very present and where there are no significant adult references.

Boys grow up developing a kind of distrust of the adult world, showing a strong anger that causes learning experience rejection and feelings of apathy that determine a passive approach to the educational experience (Batini & Bartolucci, 2016).

That is how a family hardship becomes relational and then inevitably a school distress. The boys in the class appear unmotivated, manifest rejection, feelings of inadequacy. The decision to drop out of school sometimes seems the only possible solution (Batini, 2014).

The school, however, rather than aggravating the discomfort and size exclusion (Batini & Benvenuto, 2016), can learn to act on the school climate by promoting active teaching methods, an orientation that points to the well-being of the subject and the development of orientation-relational skills, real-life skills.

### **Literature Review**

Educational failure is a primary cause of early school leaving, together with other factors related to the socio-economic and economic conditions of student families, which may aggravate the situation (Sabates, Akyeampong, Westbrook, & Hunt, 2010). The consequences of a high dropout rate can be tragic in terms of individual, social, family and community costs (Save the Children, 2017). In particular, young people who leave education and training prematurely face more difficulties in the labour market. In the OECD countries, in 2016, the unemployment rate for young people between 25 and 34 years who have not completed upper secondary education is about 17%, compared to 9% of those who, instead, completed a second-level secondary education path (OECD, 2017). In Europe, the indicator used for the quantification of the phenomenon of early school leaving is that of early leaving from education and training (ELET): young people aged between 18 and 24 with no qualifications or qualifications higher than secondary school and no longer in training. Italy currently ranks in the last places among the 28 European Union countries (after it, only Portugal, Romania, Spain and Malta) with a percentage of ELET equal to 13.8%, against an EU-28 average of 10.7% (Eurostat, 2017). Although the percentage of ELET is overall decreasing (in 2011 the EU-28 average was 13.4% and the Italian average of 17.8%, while in 2007 they were respectively 14.9% and 19.5%), our country is still below the target set by the Europe 2020 Strategy, which puts the share of ELET at 10%. A relatively high number of young people between the ages of 18 and 24 continues to be without education qualification after what was termed "middle school". Moreover, among the Italian regions there is a strong variability in the ELET rate: for example, Veneto has already exceeded the European milestone with 8%, while Sicily and Sardinia are at 24% (Eurostat, 2017). It should be stressed that the ELET indicator provides a measure of the phenomenon of early school leaving and not the current situation, therefore records the outcome of a path when it is too late, preventing, in fact, a preventive intervention or otherwise contrast to the

phenomenon. To make matters worse, the difficulty of identifying the real number of "missing" is added. In Italy the statistics available at national level often only refer to the formal abandonment (formal request for "renunciation" signed by both parents). So in the last focus on early school leaving (Miur, 2017) there are only the formal dropouts although the term "dispersion" instead of "abandonment" is used, thus underestimating the phenomenon.

School dropout is, in fact, a more complex construct that, strictly speaking, includes students who have formally dropped out of school, those who have not been admitted to the next school year and those who, although enrolled regularly, do not attend classes. In a wider sense, the dispersion also includes the failure to achieve learning and therefore the "dispersion" of the intelligences. By following the narrower definition, it is possible to try to elaborate an estimate of the scholastic dispersion which also includes the slowdowns in the educational path. According to this approach, which takes into account the difference between the number of students enrolled at the beginning of a school cycle and the number of students regularly arriving at its end, in the only five-year period of the secondary education system, almost one student out of three is slowed down or stopped by the phenomenon of early school leaving (Batini & Bartolucci, 2016).

This figure is quite in line with what was found in the latest Education at Glance report (OECD, 2017) which records how - considering OECD countries and partner countries, with available data from studies on real cohorts - the dispersion rate is very high: about 25% of students enrolled in the upper secondary education cycle did not receive a diploma two years after the end of the regular course of study and four out of five of the same students are no longer enrolled.

Undoubtedly, early school leaving can be taken as an indicator of formative inequality and lack of equity (Benvenuto, 2016) and, more generally, of a lack of quality in the education system in terms of inclusion and educational success (Pandolfi, 2017).

Social peer relations are at the centre of school experience (Pereira & Pooley, 2007). It is through relationships, new friendships (Akos & Galassi, 2004), their quality and number, that kids can define their place in a new social hierarchy (Pellegrini & Bartini, 2000) and increase their sense of self-efficacy and safety (Espelage, Bosworth, & Simon, 2000), interrelated factors to feel good in different types of schools. Research shows indeed that a positive relational climate improves school performance in terms of learning and participation levels (MacNeil, Prater, & Busch, 2009; Roeser, Eccles, & Freedman-Doan, 1999; Vieno, Perkins, Smith, & Santinello, 2005; Wang, Selman, Dishion, & Stormshak, 2010; Zullig, Huebner, & Patton, 2011; Bartolucci & Batini, 2016), minimizing the risk of discomfort and neglect.

Discomfort, in fact, does not allow the person to experience adequately the activities in the classroom, nor to learn successfully, nor to use the most of their cognitive, affective and relational skills (Mancini & Gabrielli, 1998).

The school distress manifests itself in different forms now more explicit and obvious now more submerged. It can be detect oppositional attitudes such

as restlessness, hyperactivity, learning disabilities, attention, difficulties in integrating into the group, lack of motivation, low performance, absenteeism, neglect and even poor frustration tolerance, bullying and arrogance (Pelanda, 1999). On the other hand, it is possible to find attitudes of indifference as the sense of boredom, of discontent, of disinterest. In the latter case generally students do not experience a real school leaving, but a drastic lowering of performance accompanied by low confidence in their own abilities and possibilities (Blum, 2005), in a kind of mutually reinforcing circle between disengagement and poor learning.

The multifactorial nature of distress makes it necessary to read it even in school context in a systemic perspective.

The concept of school climate is closely related to school distress. Acting on the climate means improving the quality of life within the professional community and the community of learners (Cohen & Smerdon, 2009; Gruenert, 2008).

Zullig, Koopman, Patton and Ubbes (2010) in their research identify among the key components of school climate the way in which they work, within that environment, social relations. It is no coincidence that in the research on the processes of improvement of the school the school climate has an important role (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013).

A positive school climate promotes the mental emotional social development of the student, facilitates the achievement of positive learning outcomes, ensuring the personal and social acceptance (Loukas & Robinson, 2004).

A recent study found that the perception of students on school climate could become predictive of attitudes as the victimhood and may make the discomfort at school less tolerable, especially in the transition from primary to secondary school (Hung et al., 2014).

Research by Lester and Cross (2015) have added empirical evidence to the hypothesis that in the transition from primary to secondary school students with a positive perception of school relationships, have higher levels of mental and emotional well-being, and therefore more chance of educational success. The first cycle of education corresponds to a very delicate evolutionary period of a boy growth (Barber & Olsen, 2004b). The personal, social and family disruption that the boy carries inside himself must find attenuation within school. The greatest risk is an increase in feelings of loneliness, isolation, victimization and negative and even destructive behaviours (Cohen & Smerdon, 2009; Croce et al., 2009).

Therefore, positive relationships, with teachers and classmates in a primary school may ease the transition to secondary school (Waters, Lester, & Cross, 2014), reducing the discomfort and anxiety levels (Kuperminc, Leadbeater, & Blatt, 2001; Ozer & Weinstein, 2004; Way, Reddy, & Rhodes, 2007) and anti-social behavior (Frey, Ruchkin, Martin, & Schwab-Stone, 2009; Kidger, Araya, Donovan, & Gunnell, 2012).

The scientific literature also shows that peer support enhances the feeling of safety of the school (Cowie & Oztug, 2008) and reduce bullying (Bartolucci & Batini, 2016).

The more a student lives the school and "feels cared for and" by the school (McNeely, Nonnemaker, & Blum, 2002) greater will be the likelihood of a positive academic performance and active and participatory presence, to build good social relationships and to have increased its mental and emotional well-being (Bond et al., 2007).

### **Methodology**

The intervention sample described in this paper included 80 children in primary schools and 80 secondary school children with their control groups (the totality of the project included also actions of 60 secondary school children of grade II and 75 dropouts). Once the classes and the relative control groups were identified, in the experimental classes a 70-hour training (within the curricular timetable) was carried out, divided into 30 hours of basic skill recovery through authentic tasks and 40 hours of reading aloud with narrative orientation activities. In the control classes the usual didactic activities were carried out (at the same times). The interventions were carried out by counselors and trainers of the Pratika agency in support of the teachers, also with a view - in line with the long-term objectives of the project - of disseminating the active teaching methodologies among them. The aim is to compare the developments obtained by students through traditional teaching with those obtained by those who have had the opportunity to take part in an active teaching.

The activities carried out were extended for most of the school year (about 5 months). As a preliminary phase, the teachers of the experimental classes were involved in a micro-planning of the learning units to be implemented, in order to identify, along with the trainers, the activities that could best integrate with the reality and the general level of the individual classes. With regard to the authentic activities proposed, beyond the peculiarity and diversification of contents, it is possible to highlight the following characteristics: for each learning unit, the general objectives have been identified (eg "recovery and strengthening of the basic skills of the Linguistic and Mathematical axis, recovery and enhancement of motivation compared to the study and the school") and the sub-phases and specific objectives for each phase were structured. Each proposed activity involved the realization of an authentic task (eg "creation of a city guide built from the point of view of the participating boys and girls and designed for users of their own age").

Ample space has been given to: individual and group reflection and to the pupils' proposals, also thanks to the use of "narrative stimuli" specially chosen to stimulate discussion on the topics related to the activities to be carried out; constant use of feedback and formative evaluation; space dedicated to self-reflection and self-assessment of the learning achieved during each phase and at the end of the activities (eg use of the logbook, self-assessment tools). In order to verify the effectiveness of experimentation the following instruments were used: the measurement (ex ante and ex post) through questionnaires related to dispersion (TVD), the emotional dimensions (EQ-i: YV) and a cognitive

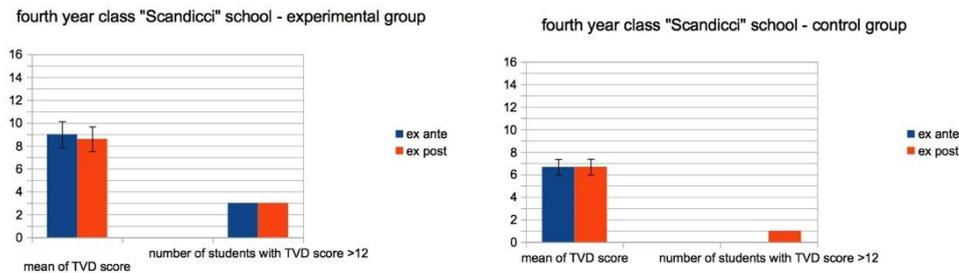
test (CAS). In addition, through self-assessment tools (students) and the assessment of teachers it has been possible to verify the learning of students. The project also foresees the longitudinal observation of dropout levels as an additional level of control. In this paper, the attention is focused on the results that was possible to appreciate with regard to evaluations carried out with the TVD tool. The TVD is a test of the discomfort rating and of early school leaving in two parts. The first part consists of 28 stimulus sentences to be completed by the students. This protocol is divided into three main areas: relationship with the self, relationship with the educational institution, relationship with other figures. The analysis of this part is quantitative, it is corrected with the appropriate manual (Mancini & Gabrielli, 2012) and by using the normative tables. Part B consists of eight stimulus sentences, allowing, crossing the results with those of Part A, a qualitative analysis. The total dimensions investigated by the whole test are five, namely: self-concept, relationship with peers, relationship with the school in general, relationship with teachers, relationship with parents.

Proposals for orient teaching have involved children and teenagers of the first cycle of education (primary and secondary levels) in a vertical curriculum logic. Through routes with guide narration (Batini, 2015), activities and autobiographical play, work has been carried out in small and large groups on identity awareness, the sense of self-efficacy and self-control, imagination, facilitating proactive relationships, stimulants, but above all present and real. Among the objectives of experimentation there was the construction of a positive school climate, in order to offset the discomfort and improve interpersonal skills and self-guidance of children from the earliest years of schooling. The use of the TVD which is a test that helps determine levels of discomfort and dispersion properties, administered *ex ante* and *ex post*, has made it possible, initially, to have a starting framework and therefore calibrate and make targeted interventions even within the framework of an overall design.

### **Findings/Results**

At the end of the path, it was made a comparative analysis of TVD administered pre- and post-experimentation of experimental classes and control classes. The analysis found that students of experimental classes, compared to colleagues in the control classes, had a better perception of themselves and of their abilities from which follows a higher motivation to study and less dispersion (Alivernini & Lucidi, 2011). For what concern the fourth classes of primary schools the tests did not detect significant changes for both control and experimental groups in line with the provisions of the test which it exerts its best effects, in terms of measurement, in the age range of 12-14 years old. In Figure 1 are shown as an example the results for the primary school involved.

Figure 1. Graphical Representation of the Results Ex Ante and Ex Post of the TVD in the Primary School of Scandicci (FI)



It is clear how there are no deviations in any of the two groups with regard to the average index of individual distress. It is observed in the control group, an increase in the number of individuals who have a score of discomfort that is located on the threshold (12) of the scores that determine concern. Statistically significant results were observed instead with regard to the experimental classes of the two secondary schools who participated in the research and intervention. The trend clearly expresses the lowering of discomfort in all the experimental classes, reaching statistical significance ( $F = 6.005$ ,  $p < 0.05$ ) in the experimental class of third year of Montespertoli. As regards the trend control classes is exactly the opposite indicates an increase in the average score relative to the discomfort felt by the boys reaching statistical significance for the first year classes ( $F = 9.407$ ,  $p < 0.01$ ) and third-year class ( $F = 18,622$ ,  $p < 0.001$ ) of the school IV Novembre. We also analysed qualitatively the tests of those guys who had a degree of discomfort with a score greater than 12 (the threshold score for which the test signals a full-blown state of distress). The analysis confirms the above data. Overall, the number of student who reach the danger level rises of a total of four subjects for the control classes while for experimental classes the number is reduced of 10 total units.

Figure 2. Graphical Representation of the Results Ex Ante and Ex Post of the TVD in the First Grade Secondary School IV Novembre in Arezzo

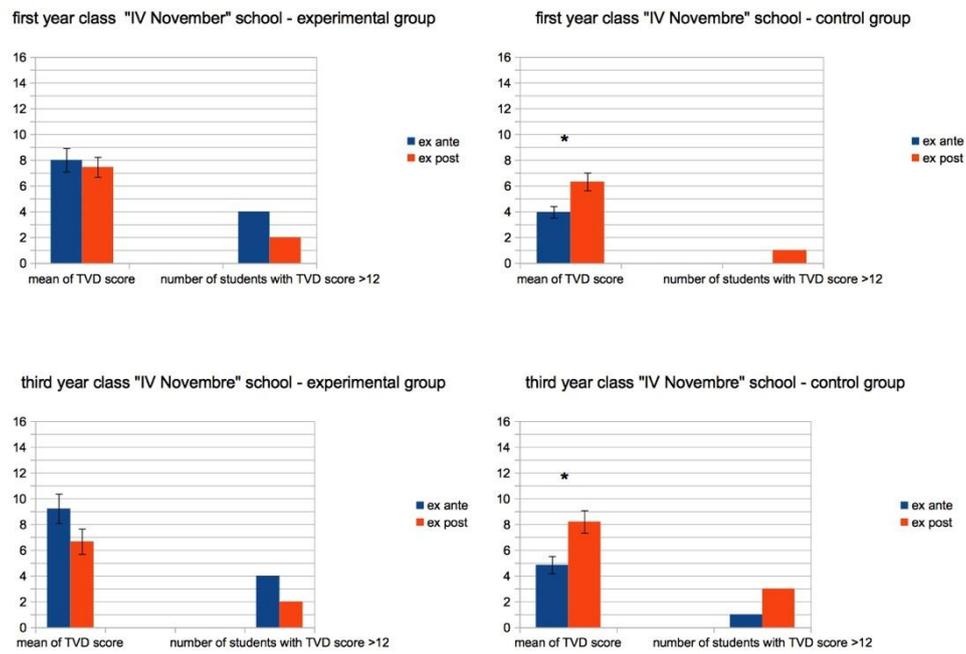
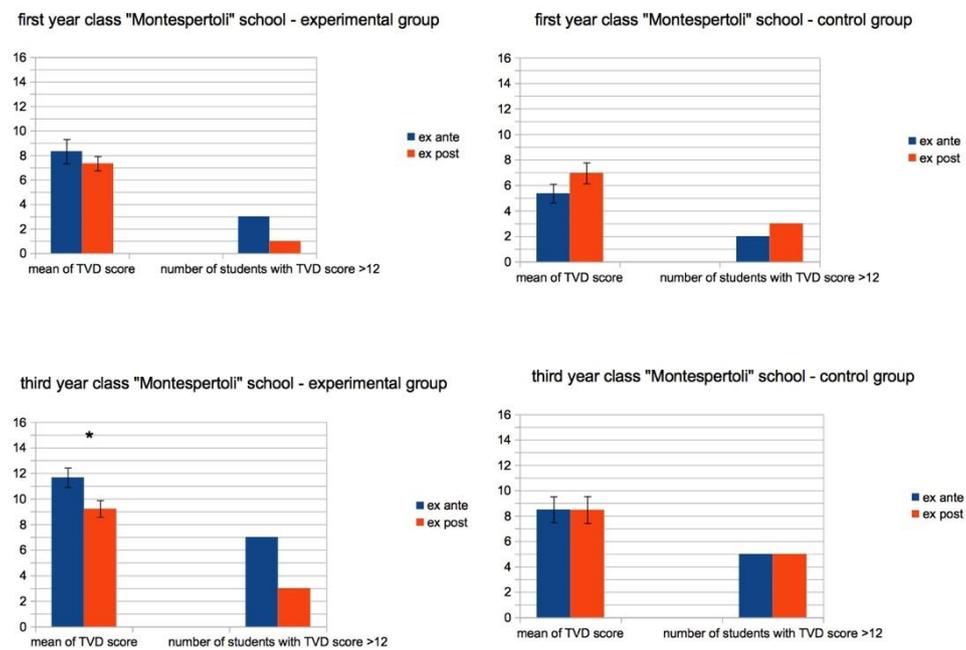


Figure 3. Graphical Representation of the Results Ex Ante and Ex Post of the TVD in the Second Grade Secondary School of Montespertoli (FI)



## Discussion

Results show a trend of decrease of distress perceived at school by the experimental classes and, inversely, an increase or stable scores for the control groups. Through active learning and the activities included in the project, students were active and this activation could have improved social relationships between students, and between students and teachers. Attention to the active and central role of the students, together with the presentation, in each meeting, of the activities that would be carried out on that day and the learning objectives they aimed at produced a strong involvement of the students who gradually developed a reflexive attitude about one's own learning. Each student was led not only to express a direct opinion on the activities, but to put in place a real metacognitive exercise that was directly influencing the motivation to continue the activities and to strengthen the learning acquired through them, thus contributing to also strengthen their self-esteem and perceived self-efficacy. Each didactic action was characterized by the activation of the students and the possibility of expressing choices and opinions. The students became an active part in the decision-making process, in the exchange and formalization of the acquired activities and learning. We know from previous research that a positive relational climate improves school performance in terms of learning and participation levels (MacNeil, Prater, & Busch, 2009; Roeser, Eccles, & Freedman-Doan, 1999; Vieno, Perkins, Smith, & Santinello, 2005; Wang, Selman, Dishion, & Stormshak, 2010; Zullig, Huebner, & Patton, 2011; Bartolucci & Batini, 2016), minimizing the risk of discomfort and neglect. Students when are active and working in groups, sharing knowledge and thoughts about activities proposed, may feel a sense of effectiveness, reducing boredom, feelings of loneliness, isolation, victimization, and thus experiencing positive relationships, with teachers and classmates, that leads to facilitation on the achievement of positive learning outcomes, and a general sense of well being in the school context. The distress issue is very important in all school levels, although in primary school is even more important because it could become predictive of bad attitudes, especially in the transition from primary to secondary school (Hung et al., 2014). In this transition in fact, students whom experience mental and emotional well being, are more likely to have chances of educational and social success. Having experienced a good climate in primary school means reducing the discomfort and anxiety levels during the transition to secondary school, and this could lead to a better develop of social interactions, attitudes to learning, and self-confidence in expressing their own personality, beliefs and motivations in the classroom context.

## Conclusions

The elements that determine the success of an experiment are never isolated. In this case the possibility of obtaining extremely positive effects in the trial of the project NoOut feed on a range of sources that reinforce each other. If the TVD data can also be read "backwards", ie showing what

happened in the control classes, with a situation that was static in the best cases it is also possible to cross the results of the TVD with other instruments used. In fact, the results of the TVD suggest a greater mastery of their learning processes in relation to the Instrument dimensions: self-concept, relationships with peers, with teachers and the school in general, the relationship with parents. This explanatory hypothesis is further confirmed by the individual administering tests CAS outcomes that showed a statistically significant increment for all experimental classes of the sample relative to the first school cycle (Batini, DeCarlo, & Bartolucci, 2017).

The conclusions that we can draw are therefore related to the effectiveness of the 70 hours of intervention in each class (divided into 20 hours of recovery/development of basic skills in mathematics area, 20 hours of recovery/development of basic skills of language area, 10 hours of narrative orientation and 20 hours of reading aloud). Statistically significant data and performance trends allow then to identify in the intervention carried out (the paths on the teaching of skills can be downloaded for free in [dispersione.it](http://dispersione.it) site) an effective antidote to school distress and the strengthening of cognitive and social tools of the subjects involved. The TVD being a questionnaire where respondents must complete sentences, it is also a very versatile tool for a series of longitudinal surveys in succession. In addition to longitudinally evaluate the influences of various experimental activities in the classroom, it could also allow you to explore qualitatively the answers in order to analyze the nuances of change that could arise from small or medium differences in subjects' responses.

The school can, therefore, achieving wide impact on improving school climate and well-being by promoting learning situations in which students can mobilize skills and potential. This is only possible through an appropriate and specific teacher training.

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## **Benefits of Working in Pairs in Problem Solving and Algorithms - Action Research**

*By Soly Mathew Biju\**

The purpose of this study is to examine the impact of peer tutoring program as compared to classroom tutoring on problem solving and algorithm development skills of higher education students in Computer Sciences. Peer tutoring has emerged as one of the most effective mechanisms of enabling learning and improving academic performance of students at all levels of education. It has since been put into practice by various institutions in a number of ways involving the tutor, the tutee and teachers or school administration who work together through a systematic process. Peer tutoring has emerged as one of the most effective mechanisms of enabling learning and improving academic performance of students at all levels of education. Primary research where selected students were trained and assigned peer tutees in the algorithms and problem solving class taught to undergraduates in the first semester. Students were placed in pairs. A pair consists of a peer tutor selected based on certain criteria and a tutee. The interesting aspect of this study is that it tests the impact of working in pairs had a positive impact on both on the tutor and the tutee.

*Keywords:* education, working in pairs, computer sciences, algorithm development, problem solving.

### **Introduction**

With the world becoming increasingly competitive in all spheres, including education, it has become pertinent for educational institutions to incorporate newer, innovative and more effective ways of enabling learning for students. Not only is education becoming complex in terms of course content and curriculum, but increasing unemployment rate in most countries of the world is creating pressure on institutions to prepare students for academic and career success in a better way. A high dropout rate due to lack of real-world experience and inability to cope with coursework is one of the biggest challenges in academia today, especially in the stream of computer science education. Various modern mechanisms and strategies have been put into play to curb the dropout rate as well as to foster better academic performance of students, such as incorporating latest technology in classroom, eLearning, a stronger screening process of faculty, etc. and working in pairs is one of them. Peer tutoring is defined as a focused learning and interaction between students in the same class; one who is good at the subject becomes the 'tutor' while the student who needs help with the subject becomes the 'tutee' (Topping, Duran, & Van Keer, 2016, p. 10). This process of using students to tutor other students can take place during class timings as a group activity, or outside of class. The tutor

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focuses on an area which needs improvement or strengthening of the tutee. The National Education Association (NEA), an institution leading the cause of public education in the USA, strongly supports peer tutoring as it leads to better academic performance. The NEA advocates the use of same-age peer teachers as an equally effective substitute for regular class teachers, when it comes to explaining the course content (Chen & Liu 2011). This system has been proven to be more successful than traditional classroom teaching because it provides a substantially higher amount of individual attention to each student as compared to classroom tutoring; and the tutees can also track their progress instantly. This method has proved the old saying that "to teach is to learn twice", since teachers learn more while teaching, as proven in a study conducted by the University of Dundee (Chen & Liu, 2011).

According to Horan (2016), the main reason for the success of peer tutoring is that students feel more comfortable receiving instructions from other students than the teachers. Peer tutoring develops a focused communication channel and a better relationship between tutors and tutees. In a typical peer tutoring session, the tutor switches roles with the teacher with respect to explaining the lessons to the tutee; this not only helps the tutor develop his/her own understanding on the subject but also provides personalized attention to the tutee. However, Johnson (2016) the importance of student-student interaction is largely overlooked in present-day education. Not only does it help better academic performance, but it also enables socialization and healthy mental development of the students, as it contributes to the achievement of educational goals. Therefore over the years a number of researchers have developed different approaches to encourage peer tutoring, one of the remarkable one is Topping, Duran, & Van (2016) emphasis on the need for peer tutoring.

Teaching algorithm and problem solving is a challenging task for lecturers and is an equally challenging task for the students to acquire the skill of problem solving and writing algorithm. Probably one of the most important skill a computer science student must possess is that of problem solving, another desirable and encouraged skill in a computer science student is that of the ability to think creatively. The biggest challenge that teachers and students of Computer Sciences and Mathematics face as beginners are the complications related to teaching and learning to write algorithms. Currently popular research methodology like Problem Based Learning (PBL) and Enquiry Based Learning (EBL) are employed to develop better problem solving and creativity skills for the students in the classroom (Rasool & Chaudhry, 2012). Institutes have also recently started dabbling with possibility of inculcating peer tutoring in these subjects to enhance students' problem-solving and algorithm development abilities. Peer tutoring is beneficial in problem solving and algorithm development domains, as it enables sharing of ideas, social construction of knowledge, and address common misconceptions through peer interactions (Schoenfeld, 2016). Moreover, researchers are also introducing several support systems such as ITS (Intelligent Tutoring Systems), Adaptive Collaborative Learning Support (ACLS) and APTA (Adaptive Peer Tutoring Assistant) to help students with mathematics and problem solving in high school and university levels (Walker, Rummel, &

Koedinger, 2014).

The main aim of this research is to study the impact of peer tutoring as compared to only classroom tutoring on problem solving and algorithm development skills of higher education students in Computer Sciences.

## Literature Review

### **An Introduction to the Challenging Nature of Higher Education, Especially Computer Sciences (Problem Solving and Algorithm Development)**

The course content of computer science is challenging as it involves complex tasks such as programming, algorithm and system development and artificial intelligence (AI). These subjects require imparting knowledge in the right way, i.e. to not only make them theoretically sound through conceptual understandings but to also develop their technical and practical skills. The main aim of the course should be to foster a mechanism to ensure workplace success of the students. Teaching algorithm and problem solving to students is a challenging task for teachers and is an equally challenging task for the students to acquire the skill of problem solving and writing algorithm (Rasool & Chaudhry 2012). Teaching is comprehended as a process of working cooperatively with students to encourage them to gather a better understanding. While teaching, a teacher must find out about the problems and misunderstandings that the students are facing (Gulatee & Combes, 2006). Popular research methods are enabled through Enquiry Based Learning (EBL) and Problem Based Learning (PBL) to develop problem solving and creativity skills of students.

Classroom teaching does not encourage critical thinking skills for problem solving. It does not focus on larger concepts needed for problem solving and algorithm development. A teacher has a lot of things to teach but within the allotted time, with little or no interaction from the side of the students. This becomes problematic because the student learns only passively, which can hinder the student's learning process, as he can have a difficult time in staying focused. Newer learning methods like peer tutoring is a more simulative method where students can manipulate and work in groups to learn the lesson (Outhred & Chester, 2010). There are other shortcomings of classroom teaching as well, in respect of problem solving and algorithm development. One of them is that the student is focused on noting down the points said by the teacher rather than trying to understand the concept. Due to this, they lack the ability to grasp key ideas and concepts of problem solving and failed in lesson objectives. Another shortcoming is that there is not much time left for practicing the concepts learned in class (Walker et al. 2014). Furthermore, many students might get stuck while doing problem sets at home (Buraphadeja & Kumnuanta, 2011). Moreover, in a class of a huge number of students it becomes very difficult for a lecturer to provide one-to one attention to each student. In such a situation peer tutoring is a feasible option through which weaker students can perform better if provided with one to one interaction. Some students can perform

excellently with a little help from their peer tutors (Adams, Kaczmarczyk, Picton, & Demian, 2006). Most important role here is that of the professor. The professor designs the assignments and structure of the activities and corresponding instructions that the tutor and the tutee has to follow. This design will determine and define learning and the process of learning. The design and management of learning experiences is not a diminished role or one about which teachers need to feel guilty. It requires sophisticated teaching expertise (Weimer, 2017).

### **Advantages, Applicability and Challenges of Peer Tutoring**

One of the biggest advantages of peer tutoring is academic achievement; the benefit is two-fold: not only does the tutor impart knowledge in the tutee, but he/she also enables self-learning in the teaching process. Peer tutors are challenged to use and hone their creativity and critical thinking skills to help tutees make logic of new matter introduced by the teacher. Students being tutored can ask questions to ensure understanding which not only tests and develops the knowledge of the tutee but also the tutor (Comfort & McMahon, 2014). Students who receive peer tutoring generally attain perform due to enhanced interest and better attitude towards the subject.

According to the NEA, students undergoing peer tutoring experience *personal development* by extending a positive attitude towards learning and academia in general (Bierman & Furman, 1981). Students who receive peer tutoring are less likely to fear or detest certain subjects, thus discouraging dropout greatly. Not only does it develop the knowledge of the tutee but also creates a feeling of self-worth in the tutee (Topping, Duran, & Van Keer, 2016).

Self-confidence and self-reliance are also two other benefits of peer tutoring. Studying with someone their own age typically makes students feel more comfortable and relaxed, making them less hesitant towards learning. Peer tutors can narrate the problems faced by themselves during learning a concept or during solving a certain math problem and how they emerged from it. This helps the learner feel like the tutee is on the same level and that if the tutor did it, the tutee can do it too, thus greatly boosting self-reliance. Moreover, since the teacher's participation is negligible, students can feel self-confident and self-reliant as they tame complex problems on their own (Creswell, 2012).

However, the downside of peer tutoring is that organizing a peer tutoring activity can be a huge undertaking for a teacher. Firstly, peer tutors must themselves be trained at tutoring before they give sessions to their classmates. Secondly, organizing peer tutoring sessions may be problematic for the school administration as they need to make adjustments to their usual school timings. Lastly, it is an added burden for teachers in a number of ways. The peer tutoring sessions need to be routinely monitored to ensure that progress is being made (Cascio, 2017). A few other shortcomings include; the tutees may not learn as much because tutors are not as experienced as the teacher, and it does not promote positive relationship between the fellow students and the teacher if they are only working with one another.

With respect to the existing body of knowledge on peer tutoring benefits in

problem solving and algorithm development, not many studies have been conducted. For instance, Nguyen (2013) studied how peer tutoring can be developed to successful instructional strategy to help low-performing students, and found that peer tutoring involves a number of activities which can be employed in isolation or cohesively to problem solving and algorithm development. Johnson (2016) researched how peer interaction brings out positive outcomes. According to him peer teaching is a far more instrumental strategy in which academically better performers can assume the role of instructors in the short term, especially in the case of problem solving and computer algorithm

Most of the studies about classroom reform and effective usage of technology does not focus on students leaving students out of the equation (Cuban, 1986; 2001; Zhao & Frank, 2003).

Systematic studies of collaboration in open-ended, project-based environments are rare (Cohen, 1994)

Lab work and other tasks where students have to abide by rigid roles and protocols for working together similar to peer-tutoring sessions have been evaluated in the past by researchers (King, 1993; Swing & Petersen, 1982). Most of these studies were conducted at K-12 teaching in the academic domain.

Peer tutoring is not a new concept, it is a very old form of collaborative or community action and has always taken place implicitly (Topping, 2005) but this method is more formalized and are becoming ever more popular in Higher education.

Vygotsky (1978) states that the concept of learning through peer tutoring is based on a social constructivist view of learning that focuses on students in learning, wherein students tutors their classmates through social interaction.

Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller (2003) finding suggest that one of the major advantages of peer learning in modern school systems is that it has allowed minority groups to integrate better, and the share their experience and thus there has been an increased likelihood of continued positive interact.

Peer assisted learning (PAL) is basically peer tutoring involving a senior student who is the tutor and a junior student who is the tutee. The tutor helps the junior student gain knowledge and skills, along with confidence and motivation. PAL is used across all levels of education. The seniors are at a better position to help the juniors as they themselves had been in that position sometime back.

Structured peer learning process will be beneficial for students and will save some time of the teaching staff especially during an era where university resources are limited and professor's time is distributed between teaching and performing advanced research and learning which is a major part of their professional development and also when universities are promoting research integrated teaching as a powerful tool in academia. Tutors here are students who not have power over the tutee by virtue of their position or responsibilities. In those research we are considering tutors who are in the same class as that of the tutee but who are doing well in the subject which is evaluated based on their performance in the class.

To facilitate successful peer learning, teachers may choose from an array

of strategies (Christudason, 2003):

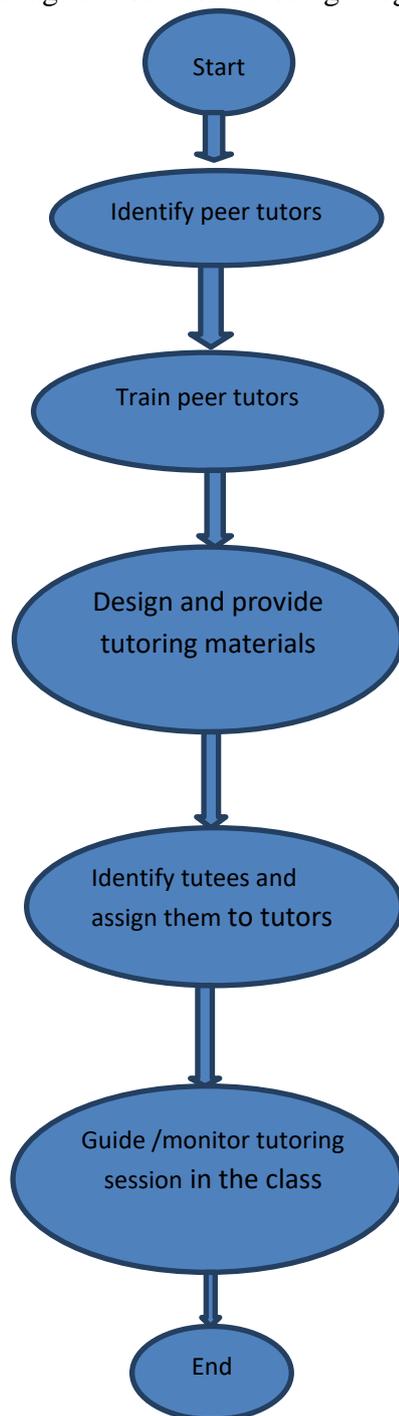
1. Buzz Groups: Students is divided into smaller groups of 4–5 students and are presented with a problem to solve. Following a discussion of around 20 minutes, the group leader presents the findings of their team to the class.
2. Affinity Groups: Here the groups of 4-5 students are assigned problem to work on outside class contact hours.They present their finding to the class the next tine the class meets.
3. Solution and Critic Groups: In this structure one of the sub-groups provide solution for a problem while another group ‘critic group’ will analyses the solution and offer their comments.
4. ‘Solution and discussion’: Towards the end of tutorial instruction session, students are required to write answers for a set of questions. The solutions are them discussed in the class with appropriate justification for the solution.

### **Methodology**

In order to fulfil the objective of the research, the researcher carried out a primary study on 50 students pursuing a higher education degree in Computer Sciences. Problem solving and algorithms is taught to students doing computer science as an introductory course at most of the universities. The learning outcomes of the subject usually are that students should be able to create algorithms for solving simple problems and be able to determine the appropriate solution technique for a given problem. They should also should be able to demonstrate an understanding of the concepts of time and space complexity as applied to simple algorithms.

Survey method in the form of evaluation of students’ test scores in different subjects was applied in two stages- before implementing working in pairs session, i.e. during mid-term, and after implementing peer tutoring, i.e. final term. Students who were weak in the subject were identified by the researcher based on results of tests conducted in the class. Working in pairs was facilitated in the class during the problem solving sessions. There a pair consists of a tutor and a tutee. Tutors were selected by the lecturer and trained to help and work as peer tutors. They were provided with material required for tutoring. The tutors were assigned one on one basis. Every student was assigned one tutor and a tutor was responsible for only one tutee. An activity diagram given in figure1 explains the steps followed by the lecturer.

Figure 1. Activity Diagram for Peer Tutoring Program



All students who took/gave were paired peer together belonged to the class were surveyed using purposive sampling method. The lecturer monitored and guided these sessions. In order to compare the benefits peer tutoring among the students studying computer science in higher education, t-test was run on SPSS software which was based on the results obtained by the students before and

after peer tutoring.

This research has ethic approval from the university ethics committee. Student participation in the study was voluntary and anonymous. The data was used after consent was given by students to use their data for research and publication purposes. To meet the objective of the study the hypothesis was developed as below:

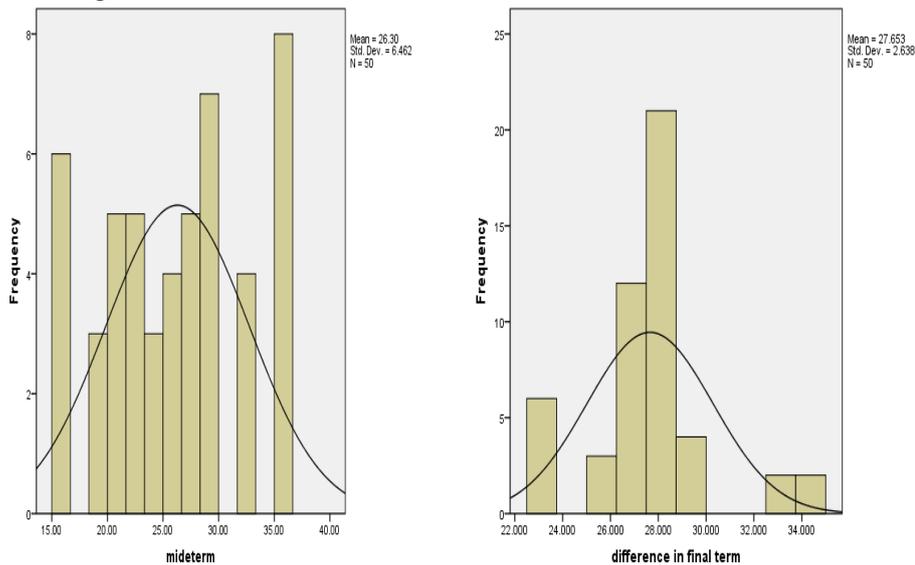
$H_0$ : There is no significant difference between the marks obtained by the tutee and the tutor after classroom guided peer tutoring session.

$H_1$ : There is significant difference between the marks obtained by the tutee and the tutor after classroom guided peer tutoring session.

### Data Analysis

As the study included only quantitative analysis, the researcher used only inferential statistics to deduce the results. In inferential statistics technique paired sample t-test was conducted on the data of both terms individually. The paired-samples t-test is considered to be applied to compare two means for those situations where every participant is involved in both samples (Prophet StatGuide, 1997). Here, in the current study, the test was run on marks obtained in mid –term and final term. The participants were same at both point of time, therefore paired t-test was considered to be more relevant by the researcher. As per the assumptions of T-test the normality of the difference of paired data was checked for both terms.

Figure 1. Normality Distribution of Marks Difference for Exam before and Peer Tutoring Session for Tutee



The difference of the marks is normally distributed for both the terms. After

establishing the assumption of the normality, the researcher now attempts to explain the derived results.

### Analysis of Results for Mid –term Scores

*Table 1.* Sample Statistics for Mid-term before Working in Pairs Session and Final Exam after Working In Pairs Session for Tutee

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	mid-term term before pair working session	21.97000	50	5.710186	.807542
	Final term after pair working session	69.13346	50	6.595986	.932813

In table 1, the simple descriptive analysis has been represented. It can be deduced that there is a major difference between the mean scores of the marks obtained before implementing peer tutoring and after implementing peer tutoring in mid-term exams. Since  $N=50$ , this implies that there is no missing value in the test variables.

*Table 2.* Correlation between the marks obtained before and after peer tutoring

Paired Samples Correlations		N	Correlation	Sig.
Pair 1	mid-term before and after peer tutoring	50	.548	.000

In table 2 it has been shown that there is a positive correlation between the marks obtained before implementing classroom guided peer tutoring and after classroom guided peer tutoring ( $r=.548$ ,  $p=.000$ ). The p-value less than .05 show that the relationship between both variables is significant.

**Table 3.** Significance Test for the Difference Obtained Before and after Peer Tutoring Session for Exams for Tutee

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	mid-term before peer tutoring - final-term after peer tutoring session	-47.16346	5.902645	.834760	-48.840973	-45.485947	-56.499	49	.000

In the above table it can be seen that on average, scores obtained by the student after implementation of peer tutoring were 47 points higher than the scores obtained before applying peer tutoring on the students of computer science in mid-terms. On the basis of the obtained p-value  $.000 < .05$  and ( $t_{49} = -56.499$ ), it can be inferred that there is a significant difference between the scores obtained before implementation of peer tutoring and after implementation peer tutoring on the students.

### Analysis of Results for Term Scores for Tutors

Once the results for the mid-terms was obtained, in the next step the researcher moved to find out whether there is any significance difference after implementing pair working session in final terms on the respondents' academic performance.

**Table 4.** Sample Statistics for Mid-term and Final Term Before and After Peer Tutoring Session Respectively For Tutors

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mid term before peer tutoring	41.48000	50	3.957633	.559694
	final term after peer tutoring	48.01110	50	12.568360	1.777434

From above table it has been deduced that there is a noticeable difference

between the mean scores of the marks obtained by tutors before and after implementing peer tutoring sessions.

*Table 5.* Correlation between the Marks Obtained Before and After Peer Tutoring Sessions in the Exams

Paired Samples Correlations		N	Correlation	Sig.
Pair 1	exam before peer tutoring & exam after peer tutoring	50	.560	.000

In table 5 it can be seen that with the values ( $r=.560$ ,  $p=.000$ ), there is a significant positive association between the marks obtained before implementing peer tutoring and after implementing peer tutoring on the respondents in final term.

*Table 6.* Significance test for the Difference Obtained Before and After Peer Tutoring Session for Tutors

Paired Samples Test		Paired Differences				T	Df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	result before peer tutoring – exam result after peer tutoring	-6.531100	10.859835	1.535813	-9.617431	-3.444769	-4.253	49	.000

On average, scores obtained by the students after implementation of peer tutoring session were at least 6 points higher than the scores obtained before applying peer tutoring on the students of computer science in the exam. On the basis of the obtained p-value  $<.05$  and ( $t_{49}=4.253$ ), it can be deduced that again there is a significant difference between the scores obtained before implementation of the proposed sessions on the tutors.

### Result Summary

It is evident from the result that there is significant difference (p-value  $< 0.05$ ) between performance of the students before and after the peer tutoring sessions. This difference is seen in case of the performance of both the tutors

and the tutees. Thus indicating that peer tutoring is more effective than working individually in a classroom among students of higher education pursuing computer science. This corresponds with the findings of Nguyen (2013) on students of computer sciences in higher education, showing that peering tutoring is more effective than the general way of tutoring as it helps to enhance the learning experience among the students.

Therefore, the researcher rejected null hypothesis ( $H_1$ ) stating there is no significant difference between the marks obtained after and before peer tutoring sessions was facilitated has been rejected and accepted the alternate hypothesis ( $H_0$ ).

Interesting finding is that the tutor has also benefited from peer tutoring sessions as improvement in the performance of all the peer tutors were clearly evident.

### **Conclusion**

Peer tutoring is undeniably an effective strategy to improve students' learning abilities and their academic performance in a wide range of subjects. When it comes to computer sciences and complex problem solving, peer tutoring has been found to be a particularly useful tool in understanding and developing algorithms, to retain confidence, to promote academic success in the subject, and to build the student-teacher relationship. The role of instructor in a peer tutoring program includes selecting the tutors, providing them necessary training and material for tutoring, guiding tutoring sessions, identifying the tutees who need to undergo the peer tutoring sessions.

The results derived in the current study has established a positive relationship with the performance of the student in academics and peer tutoring by showing a clear difference in average marks obtained by the students after and before the implementation of peer tutoring. Form the findings of the study it can also be deduced that classroom guided peer tutoring proved to effectively complemented classroom teaching especially for subjects like problem solving and algorithms.

Both the tutor and the tutee have benefitted from this process. One of the most remarkable studies in the domain of computer sciences was conducted by Nguyen (2013) who concluded that working in pairs positively affects performance and reading achievement for students of all levels, accommodates diverse students to classroom, improves social and behavioral attitudes such as sense of control and self- responsibility in the students.

Also note that peer learning cannot replace the teacher. Professor will still be required to teach and students will still need professor's guidance. Similar to other instructional methods, peer learning will be beneficial when it is selected for a specific purpose, to solve a specific problem in a class and it needs to be carefully planned and monitored and evaluated.

Though this research focuses only on the improvement in performance through peer tutoring there are many other benefits to students involved in peer

tutoring session that could be that could be studied as a part of future research.

The findings from the current study can be generalized for the students pursuing other courses too as it has been universally opined that both students in the pair, students receive peer tutoring help and those who provide peer tutoring both succeed academically as it also fills any gaps they have in understanding the concepts in the classroom. Colleges should therefore encourage and facilitate peer tutoring session for students in subjects that could benefit from this method. Lecturers should proactively identify subject that could benefit from this method of teaching.

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# Internationalization of the German Higher Education System New Player in the Market

*By Mehmet Evrim Altin\**

Rapid social, financial and political developments in the last three decades have caused some challenges for the future of Higher Education Institutions. Globalization or internationalization is one of the most important challenges in Higher Education Markets in the last two decades. Progressively, in 1996, German legislators put internationalization at the center of their reforms. The purpose of this study is to examine the results of these reforms for German Higher Education Institutions in regards to their globalization strategies such as increasing diversity of the students, improving international competitiveness of the German Higher Education Institutions, taking an active role in international EU Projects, conducting cooperation with important international higher education institutions and increasing the brain-drain to German Higher Education Institutions. A qualitative research design was used to study this problem. A multiple unit case study was carried out with semi-structured interviews with 20 high level administrators of the German Higher Education Institutions in the State of North Rhine-Westphalia. The results show that the strategies have had positive results and there is a high interest in higher education studies in Germany today. Despite demographic change in Germany, the student numbers at German Higher Education Institutions are increasing and there is a huge demand from other countries, which have increased the number of private universities in Germany in the last two decades. International competition will be seen as a challenge in the long-term and international cooperation is the strategy to solve this challenge. In the short-term, the number of English Programs and diversity are both seen as some ongoing challenges for the German Higher Education Institutions.

*Keywords:* Internationalization, German Higher Education System, Higher Education and Higher Education Institution.

## Introduction

The German Higher Education System is a very well known, traditional, and high-quality system. At the beginning of the 19<sup>th</sup> Century, Wilhelm von Humboldt, the director of Berlin University at that time, structured this system. In the last two centuries this system has developed and expanded through all of Germany, Switzerland and Austria. Throughout history, many technological improvements have been made by German scientists, and German thinkers have added important values to universal knowledge. Today, according to the OECD, Germany ranks third in export values after the U.S. and China and German Higher Education Institutions play an important role in the Higher Education world market.

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Unlike the common American Higher Education System, Pasternack and Wissel define the German Higher Education System as a unique higher education structure, based on the Humboldt System (2010). Humboldt suggested that education is a social need and has to be serviced by the state freely. Pasternack and Wissel (2010) also mentioned that academic talent is the only requirement to study in German Higher Education Institutions, and all of the teaching and research costs of the academics have to be covered by the State. Such a system is strictly bound by State regulations and the state puts limitations on the activities of German Higher Education Institutions. These institutions are dependent on state regulations and strictly bound by law. On the other hand, most of these institutions are very well known in university rankings and have very good reputations. Switzerland and Austria follow the German Higher Education tradition and shape their higher education institutions according to this understanding.

The German Academic Exchange Service (DAAD) is the official institution to service the information about the German Higher Education System. According to DAAD, there are four main types of German Higher Education Institutions (HEI), which include Universities, *Fachhochschule* (FH), Arts & Music Universities (AMU) and Theological universities (DAAD, 2017). Universities are the top higher education institutions in Germany, and only high school students with an *Abitur* (High school Graduate Exams) degree can enter these institutions. *Fachhochschule*, translated in English as Universities of Applied Sciences, are occupation-based and mostly technical institutions. All students, with or without *Abitur*, can enter these HEIs after fulfilling some requirements of the respective Faculty within the *Fachhochschule*. Arts & Music Universities are higher education institutions structured around arts and music, and mostly students with *Abitur* enter these institutions. Some exceptional entrance cases and unique exams are also possible in Arts & Music Universities and theological universities.

DAAD reported that, in 2017, there were 106 state and state-recognized private universities in Germany with 1,754,309 students. In addition, DAAD's statistics mention in the same year that there were 246 University of Applied Sciences (*Fachhochschule*) with 956,928 students and 52 Art, Film and Music universities with 35,607 students. There were also some other religious based or public administration higher education institutions but in general in 2017, 2, 8 million students were enrolled in 427 German Higher Education Institutions (DAAD, 2017). About 17 German universities rank among top 250 universities in the world (THE, 2017).

This traditional, unique system started to globalize in the last three decades and transformed itself according to the worldwide higher education market. The aim of this research is to highlight this change and analyze current strategies of the German Higher Education Institutions (GHEI) such as Quality Management, Capacity Building, increasing competitiveness and diversity management in this change.

## **Literature Review**

According to Jane Knight, "Internationalization" in higher education is the process of integrating an international, intercultural or global dimension into the purpose, functions, or delivery of higher education (Knight, 2004). In 1996, German legislators put internationalization in the center of their reforms (Teilcher, 2005). Internationalization is a substantial element of university identity. A lack of international activities, transfer of scientific knowledge and information, and change of thoughts and ideas across borders is a sign of an unthoughtful university (Leszczensky & Barthelmes, 2011). The importance of internationalization and competence of the German Higher Education institutions in the markets were acknowledged by the German legislators and there were two main changes that occurred during the globalization of the German Higher Education System in the last three decades.

The first important event was the unification of East and West Germany. After the unification, initially the universities in East Germany transformed their identity and began to copy the structure and policies of the universities in West Germany, which took more than a decade. Before this transformation it was not possible to engage German Higher Education Institutions without considering East and West Germany independently. With this change Universities in East Germany left their ideological philosophy in the higher education system and took science as the center of their work, as it is in West Germany, and rebuilt their structure around a focus on research. The second change was the European Union project that accelerated the globalization of the German Higher Education Institutions. The European Union's project in the political stage also affected the higher education of European countries and Germany. Such a process, which was accelerated during the 1990s, resulted in the signing of the Bologna Process in 1999. Education ministers of 29 European countries came together on the 900<sup>th</sup> anniversary of the University of Bologna in Italy. They signed the Bologna Agreement, which had three main goals in higher education. These goals were to increase the mobility, international competence ability, and employment ability of students in the EU and candidate countries (Leszczensky & Barthelmes, 2011).

Germany pays great attention to the Bologna Process. In Germany, in particular, resources are currently flowing into implementing the structures of the Bologna Process at an undergraduate level and continuing education has been shelved (Hanft & Knust, 2009). Almost all higher education institutions are using this system and it could be said that the Bologna process is established in Germany. To reach the EU goals, German legislators accepted the European Credit Transfer and Accumulation System (ECTS) and transformed their 200 year- old so-called "Diplom-System" to the new commonly known "Bachelor and Master System". There are several differences between these two systems but the most significant change occurs in the study period. During the classical Diplom-System, students have to study five years to get a higher education degree in Germany. However, after the Bologna process, this old system was divided into two parts, the so-called Bachelor's and Master's

degrees today. The Bachelor's degree takes almost three years, with 180-240 ECTS, and the Master's degree takes 90-120 ECTS, which is almost one and a half years. In this system, one year (two semesters) corresponds to 1500-1800 study hours. After these two degrees comes the third degree, the Doctoral degree, in which no ECTS is used. Unlike the American system, which is based on a four years of Bachelor studies, the Bachelor's degree in EU countries requires three years with a Bachelor's Thesis at the end. In addition to the standardization of the higher education studies in EU, student mobilization (Erasmus and Socrates programs), foreign language development, quality improvement in PhD studies, increase in exchange programs (Erasmus), and the positive global approach to higher education in Europe are the main achievements of this ECTS system (Teilcher, 2005). Statistics in 2010 demonstrated that there were 102,800 German students studying outside of Germany in 2008, which is 5.8 % of German students in GHEI. This number is twice as large as it was in 1988 (Leszczensky & Barthelmes, 2011).

According to Leszczensky and Barthelmes, after eleven years of the Bologna Process, national structures have changed and a common HE system is being used, effectiveness and quality standards have increased, and institutional competence ability has grown in the HEI of European Countries (2011). On the other hand, German Legislators and German Higher Education Institutions want to go beyond these achievements and be prepared for the future. The main question in this point is how can German Higher Education Institutions take the world's leading Universities and Research centers position in the future and what kind of measures have to be developed in GHEI to achieve this goal? There are several strategies decided on as a solution for these questions and practiced by German Higher Education Institutions today. These strategies of the German Higher Education Institutions were asked of higher education administrators in Germany during the field study and "Internationalization" became one of the most mentioned strategies by the participants. How this strategy is understood and practiced by the GHE administrators is explained in detail in this paper.

### **Methodology**

In this research, a qualitative research method was used, involving interviews with administrators of the German higher education institutions. As it was mentioned above, how German Higher Education Institutions take the world leading Universities and Research centers position in the future is asked to the participants. Privatization, Decrease of the state funding, Diversity management and internationalization are some future challenges according to Participants of the Research. From these results, Internationalization of the German Higher Education Institution is analysed in this paper and the current internationalization strategy of these institutions are discussed by the administrators by focusing directly on their opinions of the issue.

There are several methods used in qualitative researches. The case study method is one of the important methods and Yin explains this Method as follows:

"A case study is preferred when the inquirer seeks answers to how or why questions, when inquirer has a little control over events being studied, when the object of the study is a contemporary phenomenon in a real life context, when the boundaries between the phenomenon and the context are not clear, and when it is desirable to use multiple sources of evidence" (Yin, 2009, p.18)

Merriam defines case study as observing a delimited system deeply and widely (Merriam, 2009, p. 40). According to these views, this study is a case study because the researcher works on a "How" question and he does not have any control over the subject. The researcher used multiple sources and he limited his research to the North Rhine-Westphalia state of Germany and administrators of HEI in this state. There are 16 states in Germany, and North Rhine-Westphalia (NRW) was selected in this research because NRW is one of the biggest states of Germany and four of the biggest cities (Cologne, Düsseldorf, Essen, Dortmund) are in this state. The HE Institutions in this state are examined in regards with the concepts in the conceptual framework with multiple units of analysis. These units of analysis are the institutional structure, educational mission, and financial structure

As each university is considered as a case and multiple units of analysis are used to analyse these cases, embedded multiple case design is used in this research. In Table 1 the list of participants per their institutions are shown.

*Table 1. Participants Division per Types of their HEI*

	<b>Institution Type</b>	<b>20</b>
<b>Structure</b>	University	7
	Fachhochschule	4
	Technical HEI	9
<b>Educational Structure</b>	Lecture Based	6
	Researched Based	11
	Arts & Music	3
<b>Financial Structure</b>	State	13
	<b>Private</b>	<b>7</b>

All data in this research were collected by face-to-face semi-structured interviews between September 2014 and June 2015. De Marrais (2004) defines face-to-face interviews as a specific conversation between researcher and interviewer about a field, and questions regarding this field (deMarrais, 2004). Dexter gives a much simpler definition and says that face-to-face interviews are conversations that depend on a specific goal between participants of the discussion (Dexter, 1970).

Merriam defines semi-structured interviews as interviews consisting of open ended questions and describes participant's perception of the world with his or her own ideas (Merriam, 2009). That is why the semi-structured interview

method is used in this study, which is mainly about the opinions of the participants about the conceptual framework.

The interview protocol was prepared by the researcher with probing questions according to the subject. After that, all interview questions were sent to an expert on qualitative research method and these questions were restructured per the expert's views. The last version of the questions was used in interviews. The following questions were asked during the interviews;

Question 1: Prof. Dr. X, do you think that "internalization" is a real challenge for your institution in the future?

Probe: How do you think German higher education institutions in general and your institution in specific have been influenced by internalization?

Question 2: If we consider the German Higher Education Institutions, could we talk about local or global competition as a challenge in the future perspective?

Probe: What will be the right method to deal with the challenge of competition in the future?

Question 3: What do you think about diversity management in German Higher Education Institutions?

Probe: What are the strategies used by your institution to deal with diversity challenges?

Probe: How do you think it influences the German Higher Education System in General?

As previously mentioned, all interviews were recorded and transcribed. Merriam indicates that the best way to keep data is recording and transcribing it during the data analysis (Merriam, 2009). Bogdon and Biklen advise that it would be better not to lose time between the recording and transcribing part of the interview, because in this time-period the researcher could forget some details or important information about the research (Bogdan & Biken, 2007).

Taylor and Bogdon (1984) mention that in qualitative research, the names of the participants and institutions need to be protected by nicknames or coded names (Taylor & Bogdon, 1984). For this reason, the names of the participants and their institutions are coded in this research and this code system is shown in Table 2 below.

Table 2. Coding of the Institutions and Participants

Institutions	Code of the Institution	Participants' Position	Participants' Code
Universities	U1	Dean	U1D
	U2	Rector	U2R
	U3	Vice Rector	U3VR
	U4	Rector	U4R
Fachhochschule	FH1	Dean	FH1D
	FH2	Rector	FH2R
	FH3	Vice Rector	FH3VR
	FH4	Rector	FH4R
	FH5	Rector	FH5R
	FH6	Vice Rector	FH6VR
	FH7	Vice Rector	FH7VR
Technical HEIs	TFH1	Vice Rector	TFH1VR
	TFH2	Rector	TFH2R
	TFH3	Vice Rector	TFH3VR
	TFH4	Dean	TFH4D
	TFH5	Vice Rector	TFH5VR
	TFH6	Vice Rector	TFH6VR
Arts & Music HEI	AMU1	Vice Rector	AMU1VR
	AMU2	Vice Rector	AMU2VR
	AMU3	Rector	AMU3R

## Results

In addition to positive results of the Bologna process, like improving quality or facilitating students' mobility, German Higher Education Institutions practice several strategies and try to take the leadership position in the globalization process. Taking an active role in international markets and trying to increase international cooperation with other higher education institutions, especially for the ones which have a high reputation, are one of the current strategies supported by German legislators today. To practice this strategy and achieve the long term of goals of the German Higher Education Institutions, administrators of these institutions practice several strategies. Initially, administrators try to fulfill the quality requirements of the EU standards, which will increase reputations of their institutions on the eyes of the community and investors. Secondly, these institutions are supported and founded by several institutions such as Deutsch Forschungs Gemeinschaft (DFG - German Research Community), foundations like Alexander von Humboldt Foundation and the European Union for their research activities. These supports expand the research capacity of these institutions both vertically and horizontally. By increasing their quality and after that their capacity, German Higher Education institutions have increased their competitiveness in international markets and become a stimulating place for other researchers and higher education institutions to

cooperate. In addition to these steps, German Higher Education grounded several initiatives to follow the international higher education exhibitions, international seminars, advertisement, marketing and international scientific cooperation. The last strategy in internationalization process is the diversity management in German Higher Education Institutions. All of these four strategies are explained separately in this part.

### **Quality Management in German Higher Education Institutions**

According to the European Association for Quality Assurance in Higher Education (ENQA), quality of education refers to the quality of an institution's teaching and graduates. Institutions generally use employment rates of their graduates, reputation indexes, and quality management activities as basic indicators of the quality of education (ENQA, 2017). Quality is the corner stone during the internationalization process of German Higher Education Institutions and there are three types of quality management institutions in Germany such as: internal quality management offices, private accreditation agencies and the German Council of Science and Humanities (also referred to as WR, Wissenschaftsrat) in Germany.

All of the participants mentioned that they have internal quality management offices in their institutions and quality management teams; they evaluate the courses and try to keep the quality of the programs as high as possible. FH3VR mentioned that: "I think our quality management department does a good job. They do evaluations and questionnaires for every year. This shows annually the quality level of our institution" (personal communication, February 2015). In addition to internal control, German law requires from higher education institutions to apply external private agencies to accredit their programs and also university management. There are several agencies such as the Accreditation Agency for Engineering, Computer and Natural Sciences (ASIIN) or the Agency for Quality Assurance through Accreditation of Study Programs (AQUAS). These agencies have different expertise like technical studies, business studies, natural sciences, et cetera and higher education institutions must apply to these institutions for their programs according to their expertise to evaluate the important elements of programs like the syllabus or academics of the program, and accredit these courses. In addition to these institutions the German Council of Science and Humanities (WR) controls both the institutional quality of some Higher Education Institutions and these external private accreditation agencies in Germany. Old universities and some Universities of Applied Sciences (FH) with a great history or very high reputation are outside of this control. All private universities and new state universities or FHs must be checked by this organization and both the administrative and educational structures need to be approved by this institution. HEIs that have been approved by the WR several times hold a special degree that exempts them from further WR control. FH5R explained this system in detail:

"We have the accreditation law which has two sided, from inside and outside. There are ten different private agencies like FIBAA, AQUAS etc... which

controls the study programs. They check our programs and also see the practice of these programs. And also on the other hand we have "*Wissenschaft Rat*" which means *Science Commission or Science Committee* above these private agencies and they also control us separately. As I said these ten private agencies control the accreditation of our courses and this *Science Committee* controls our institutional standards. The *Science Commission* also controls these private agencies and they are the main control organization in the Germany." (personal communication, December 2014)

Internal quality management offices, private accreditation agencies, and the German Council of Science and Humanities (WR) are institutions responsible for working on quality assurance of GHEI and targeted to keep the quality of GHEI above the required EU standards. How the system works is explained by the European Quality Assurance Register for Higher Education (EQAR). EQAR became operative as the "European register of quality assurance agencies, covering public, private, and thematic agencies, operating or planning to operate in Europe" in 2008 (EQAR, 2017). Most of the German Higher Education Institutions achieved EQAR's standards and therefore 17 participants of the study mentioned that their unemployment rate is less than 5% six months after graduation. OECD reports also support this result:

"Germany is one of the few countries in which unemployment rates have declined continuously, and across all education levels, between 2005 and 2010 and between 2010 and 2012. Between 2005 and 2012, unemployment rates decreased by 7 percentage points among adults without upper secondary education (from 20.1% to 12.8%), by 6 percentage points among those with an upper secondary or post-secondary non-tertiary education (from 11.0% to 5.3%); and by 3 percentage points among those with a tertiary qualification (from 5.6% to 2.4%). By contrast, on average across OECD countries, unemployment rates increased between 2005 and 2012 at each of those levels of education (by 3 percentage points, 1.6 percentage points and 1.1 percentage points, In 2012, unemployment rates at the different levels of education in Germany were below the OECD averages (OECD averages are 13.6%, 7.8% and 5.0%, respectively)". (OECD, 2014)

These statistics demonstrate that the quality of education is not a challenge for the German Higher Education System. Only Arts and Music Higher Education Institutions are an exception due to the current market. These institutions also take some precautions and plan strategies to deal with this issue. One strategy is to combine some programs like "arts and teaching" or "arts and therapy". These strategies could build more bridges between Arts & Music higher education institutions and the market which will decrease the unemployment rate in the future.

### **Capacity Building for International Research Activities**

A second important step during effective role-taking in the internationalization process is supporting universities and scientists in their research activities. German Higher Education Institutions need this support to build and expand their capacity in their research activities and in this way, Higher Education Institutions could fulfill the needs of the industry and have a chance to cooperate and compete with other international higher education institutions in global markets. Such support is sourced from the federal government, local governments and some other private companies and delivered to several foundations in Germany. These foundations cooperate with the universities directly or with the scientists through some specific scholarship programs and fund them in their research projects. The German Research Foundation (DFG Deutsche Forschungs Gemeinschaft) and Alexander von Humboldt foundation are two of the very well-known institutions from several other federal and local foundations in Germany. DFG encourages German Higher Education Institutions in international research activities and announced the following statement about the subject on their annual report in 2016:

"Proposals for research projects with international partners can be submitted at any time within any program in the DFG funding portfolio. The DFG also has agreements with specific countries and regions on special funding opportunities. In addition to project funding, there are funding opportunities designed to intensify international cooperation." (DFG, 2016)

In addition to financial support, which has no time limitation, the DFG also provides funding opportunities designed to intensify international cooperation. These can be used to establish scientific collaborations, organize international scientific events or invite visiting researchers to Germany. Unlike DFG, the Alexander von Humboldt Foundation is an organization which supports researchers at the post-doctorate level and above in their research activities, not institutions. Researchers can apply to Alexander von Humboldt Foundation, without considering their institute or organization that they are working for, and the science committee of the Foundation looks at the qualifications and future research plans of the researcher and supports them if he or she can fulfill the required level.

The research results show that such a support is crucial for research activities. By this method, which is called third party support, higher education institutions increase the research activities in their institutions and help the researchers to provide for their needs. TFH4D mentioned that:

"The main issue here is to find resources for research activities. This is our main problem and that is why we are writing projects and looking for third party support. Otherwise 90 per cent of our budget, which comes from state support, is enough for our educational activities." (Interview, February 2015)

17 out of 20 participants mentioned that third party support has a complementary role in the whole budget and that solely state support is not sufficient for research activities in German Higher Educations. This kind of support caused two main results, both vertical and horizontal expansion in the research capacity of the institutions. In the horizontal dimension, universities could hire more academics and do more research in different fields. U3VR said that "Third party funds are mainly for research activities and we have roundly 400 professors and 2700 academic staff and they are mainly paid by state but 400 hundreds of the whole number is paid by third party funding"(Interview, February 2015). In the vertical dimension, the institutions could support their high cost research activities easily and get the needed materials even it has high costs.

### **Increasing Competitiveness of the German Higher Education Institutions**

As mentioned above, globalization and the Bologna process also alleviate evaluation problems and put some standards on Higher Education. EU rules have forced Universities to form their own quality management systems, which increase the quality of their programs (Leszczensky & Barthelmes, 2011, p. 28). Aside from these changes, most of these countries began to offer English programs, which is much more interesting for the foreign students of Europe. Such improvements make competition a big challenge for Higher Education Institutions all over the world. In addition to this point, due to the development of web-based programs and online studies, competition has become much more important in the Higher Education market. German legislators and higher education administrators saw these results and founded several initiatives and projects to make German universities competitive in international markets. Before explaining these platforms in detail, it is crucial to mention the German Rector's Conference (HRK, Hochschulrektorenkonferenz) and its role in the German Higher Education System.

The German Rector's Conference (HRK) is the voluntary association of state and state recognized private universities in Germany, which was founded in 1903 with 28 members at that time. Today the HRK has 268 member higher education institutions, where approximately 94% of all students are enrolled in Germany and HRK plays an important role in internationalization process of the German higher education institutions. Prof. Dr. Horst Hippler, president of the HRK, said that the HRK continuously aims to encourage universities to systematically integrate the international dimension in all their areas of activity. "We need university staff that is sensitized, motivated, and qualified to strengthen internationality and multiculturalism" (HRK, 22 May 2017). As an umbrella organization, HRK considers the competitiveness of the German universities in international markets as a very important subject. HRK establish its supporting duty by founding several methods with its members.

One of these methods is building initiatives that are working on this issue. Germany Internationale Hochschulmarketing (GATE) is one of the most important initiatives which was founded by HRK in cooperation with DAAD.

GATE-Germany is the largest and most experienced service provider for international university marketing in Germany. With its unique expertise, the consortium supports German universities in the following points:

- To actively and purposefully position itself in the international university landscape
- To present their rich potential professionally and convincingly, to recruit the best minds worldwide
- The German scientific community in the medium and long term is to be internationally attractive and competitive (GATE, 2017)

To achieve these goals GATE gives several services to the German universities like informing them about the international higher education exhibitions and their participation requirements. GATE also provides marketing services, advertises international study programs, language courses, and informs its members from the international seminars, conferences and webinars. Universities can demand consulting from GATE about their internationalization process and also information about the countries or some parts of the world where they want to cooperate. The HRK itself conducted some projects to help its members in their internationalization strategies. The Audit "Internationalization of Universities" project is one of these projects which was started in 2009 with 9 universities. This project is explained in the official website of the HRK as follows:

"The Audit "Internationalization of Universities" helps German universities to approach the internationalization process strategically and to establish it within the institution. The main objectives of the Audit are to assess a university's current state of internationality and (further) develop an institutional internationalization strategy based on this assessment." (HRK, 2017)

In addition to the HRK, the Federal Ministry of Education and Research and other Foundations in Germany created several initiatives to support the competitiveness of German Higher Education institutions in international markets. "Excellence Initiative" is one of the most important initiatives which was founded by the German Research Foundation and the Federal Ministry of Education and Research. This initiative aims to promote cutting-edge research and to create outstanding conditions for young scholars at universities, to deepen cooperation between disciplines and institutions, to strengthen international cooperation of research, and to enhance the international appeal of excellent German universities (Wissenschaftsrat, 2017). So far, the German federal and state governments have spent €4.6 billion between 2006 and 2017 to support so-called clusters of excellence, graduate schools and institutional strategies to promote top-level university research (Böttcher, 2016). In June 2016, the name of this initiative changed to "Excellence Strategy" and the German Chancellor accepted supporting these top level universities with annually € 533 million

from 2019. The new funding is set to continue indefinitely and initially 11 universities are going to use this money. Four candidate universities are going to apply the Excellence Strategy in 2025.

Such support from different institutions and initiatives has positive effects on German Higher Education institutions. Despite demographic change in Germany, 18 participants of the research out of 20 mentioned that the students' numbers are increasing and the other two participants said that it is remaining constant today. FH6VR expects more increase in the future and reasoned this issue as follows:

*Yes, it is clearly increasing and that is why we need more professors or other staff. For example, in 2010 we had less than ten thousand students but today we have more than thirteen thousand students which is almost 35 % more. In the future, I expect more increase in the student number, not as much as today but increase. Because I believe in the following ten or twenty years some of these new founded private universities have to quit and we will get their students. That is why I am expecting more increase in the student numbers (personal communication, January 2015)*

Because of this perception, 16 participants out of twenty do not consider "competition" as an ongoing challenge for their institutions. U3VR mentioned that: The student number is increasing in the last two decades and we are not thinking that competition is a big challenge today for our university in this region because of our quality and attractiveness. (personal communication, February 2015) However, all participants expect more competition in the future of the GHEI. In this point, the question is whether "local" or "global" competition will be important in the future of the GHES and various answers were received from the participants.

In this research, 60% of the participants stated that both global and local competition will be a challenge in the long term, where 30% consider only global competition as a challenge and 10% think that local competition will be a challenge in the future of GHES. To have a better understanding about these numbers, it is crucial to look at the types of the institutions where participants work. For example, Research institutions are mainly concerned about global competition. Five participants out of nine mentioned that it will be global and the other four participants mentioned both. However, these four participants highlighted that global competition will be more important challenge than local competition. FH7VR explained this issue as follows:

*According to student numbers, it is clearly local more than global competition. Our ninety X of our students are coming from this region and that is why local. But if we talk about professors or qualified staff, it is clearly global competition. We have to get the best brains to our institution and this is a global market and we have to compete with global actors. And other perspective, if we talk about resources, we are also competing with global competition, because many universities from all over Europe are*

*applying to such EU funds and other projects. That is why from Resource perspective we also have to compete internationally (personal communication, January 2015)*

On the other hand, teaching institutions are mainly concerned about local competition. This is mainly because the university numbers in Germany have increased in the last two decades and there are many new private higher education institutions which have joined the market. TFH2R highlighted this issue as follows:

Both, we have to be careful and look at the local environment carefully. For example, in Cologne there are a lot of institutions, which have similar programs that we have and it is difficult to survive. I said this tragically. Maybe it is much more difficult in Berlin but in Cologne it is also quite difficult. (personal communication, December 2014)

In addition to type of the universities, the language of the courses are also important in this issue. FH1D gave "Law Faculty" as an example and mentioned that "it is a German law and we are the only market on the planet who are teaching German law and that is why it is local. It is a German pool and all lectures and research is in German." AMU1VR had a similar approach to local competition and explains this issue as follows:

Music is international and we have international challenge. The same case is for dance or design. But if we talk about drama or theater are language based and we could only think about German speaking countries like Germany, Switzerland and Austria. (personal communication, February 2015)

To decrease the local competition between German Higher Education institutions and force them to focus on more international competition, German legislators have wise practices inside Germany. U3VR highlighted this issue as follows:

*There are big universities here in this region like Duisburg-Essen University and Technic University Dortmund but we shared the study fields and that is why we could not talk about local competition. That is why we do not compete with these Ruhr region universities but we are collaborating with each other which makes Ruhr region much more attractive...We have an agreement with these universities and students can visit other courses. (personal communication, February 2015)*

On the other hand, especially in the courses which could be presented in English and get the best brains for research activities, there is a huge Global competition in international markets. FH3VR mentioned that "To find the best *professors or lecturers and also student numbers there will be global competition* for GHES and I could say that English spoken countries are much more better position than us because of the language difference." (personal communication,

February 2015). In addition to this point, FH2R highlighted another issue in global competition and said that "so called Massive Open Online Courses (MOOC) or Archeology Datenexport-Standard (ADEX) online programs could allow the global competitors join the German market and that is another challenge."(personal communication, December 2014)

To deal with especially global competition and to make German higher education institutions more competitive in international markets, participants mentioned that they try to increase attractiveness of the programs, diversifying current programs, servicing more flexible programs (especially with E-Learning) and opening diverse master programs offered to the students. In addition to that, cooperating with foreign HEIs and local companies could increase the reputation of the GHEIs and make GHEIs more competitive in the global market. Focusing on global issues and organizing global events like panels, conferences or seminars are also mentioned this part. Showing the quality of education with marketing activities and advertising important advantages of GHES like the employment rates or the academic staff to student ratio at the GHEI is another strategy that was mentioned. The above-mentioned organizations like German Rectors' Conference, German Research Foundation and different initiatives, like GATE or excellence initiative, collaborate with the German higher education institutions support these activities. This support could be financial funding or strategic consulting universities in their internalization process, like the HRK did in the Audit Project.

a. Diversity Management in German Higher Education Institutions

The last but not least important subject in the internationalization process is diversity management in German Higher Education Institutions. There are two aspects in this subject which contain as many international students and international academics from different cultures in German higher educational institutions and encouraging and supporting German university students and academics in their international studies. Both aspects are necessary to increase the diversity of the German universities.

The first aspect, the number of foreign students and cultural diversity of the campuses, is a real challenge in the future of German Higher Education Institutions. An OECD report in 2014 also mentioned this approach, and warned that Germany's international education market share is falling.

Having hosted 6% of all international tertiary students in 2012, Germany ranks third (behind the United States and the United Kingdom) among top destinations for tertiary students enrolled outside their country of origin. However, the share of international students who chose Germany fell by almost three percentage points between 2000 and 2012, as other countries, such as the Russian Federation, attracted an increasing number of international students. (OECD, 2014)

Erasmus statistics also supported this statement. According to these reports,

the most popular destination among students was Spain, which received 35,386 students, followed by France, the United Kingdom, Germany, and Italy. The results of the research in 2015 have parallel findings to these statistics. 15 participants out of 20 mentioned that it will be a challenge for the future and obstacles in this challenge have to be reduced and removed. The FH2R mentioned that:

Of course, absolutely and it is a positive challenge. More diverse students, colleges or lecturers are better educational offer should be. We are sure that we need it and we have a problematic history as everybody knows that suffers a lot in this point. That is why it is important for us (personal communication, December 2014).

During the interviews, only one participant did not want to mention any percentage about the ratio of the foreign students. The other answers are divided in to three parts such as: less than 10%, between 10 to 20% and 20% or more. According to the results, nine participants mentioned that foreign students are less than 10 %, six participants mentioned that it is between 10 to 20% and the other four mentioned that it is more than 20%.

The type of the institution plays important role in this subject. Universities are more diverse institutions than Fachhochschule and Technical HEIs, according to foreign students' numbers. Universities in Germany mostly have good academic reputation and high education quality. For this reason, mostly foreign students prefer or want to study at these institutions and that is why, unlike the general approach, the foreign student percentage is very high at universities. Four out of seven participants mentioned that foreign students take more than 20% of the students. U2R mentioned that they do not have any strategy to attract more foreign students because they are already coming and with immigrants who have a foreign background, almost 25 % of their students are coming from different cultures or nationalities.

Unlike universities, Fachhochschule (University of Applied Sciences) have a lower percentage of foreign students. The majority of the participants (six out of eight) said that they have less than 10% foreign students. They mentioned that foreign students do not know the difference between universities and FHs and because of this, they have less interest in studying at a FH. However, immigrants in Germany who are coming from different cultures or nationalities, know the system in Germany and have interested in studying at FHs. These students are counted as a German citizen in statistics because they have a German passport. Therefore, TFH4D debates on these statistics and mentioned that:

It is difficult to say. For example we have students who have a German passport but they belong to other nationalities. If we just look at the foreign passport, I could say that we have just 5% foreign students. However my assumption is 25% of our students are foreigners. That is why I could approximately say that foreign students take 5% to 25% of our whole students (personal communication, February 2015)

Only participants from Arts & Music Higher Education Institutions do not consider diversity as a challenge because of have a very high percentage of foreign students in their institutions. This could be mainly because of the reputation of these schools and the success of these institutions against their global competitors. For example, Folkwang Fine Arts University had an award for the highest foreign students percentage in their institution. AMU1VR reported that 40% of their students do not have a German passport. Additionally he said that:

We have a diversity management team here in Folkwang University and they are focused on especially the language issue. They are giving German courses and students have to have a specific degree. We do not like also that Korean students come together and do not contact with others, I mean managing the diversity is another challenge (personal communication, February 2015)

Precautions against this challenge is also asked to the participants. The most announced strategy to deal with this challenge is to remove differences between universities and FHs. More transparent GHEI have to be structured in Germany for the future. More advertising in the global markets, increasing the 100% English programs in GHEIs and partnership activities with foreign universities are the other mentioned strategies in the interviews.

The other aspect of diversity management is sending German tertiary students and academics to foreign countries and letting them see different cultures and different kinds of research activities in other parts of the world. Such an experience does not just help German students and academics to research local issues in these regions, but also helps them to expand their vision and world perception. By this way they could produce different kind of methods and solutions in their studies in Germany. The German Academic Exchange Center (DAAD) plays an important role to increase the number of the German students and academics who have an international expertise. DAAD funds support German and international students in their international studies and helps them with different kind of scholarships. DAAD explains its role in its website as follows:

DAAD is the world's largest funding organization for the international exchange of students and researchers...Since it was founded in 1925, more than 1.9 million scholars in Germany and abroad have received DAAD funding. It is a registered association and its members are German institutions of higher education and student bodies. Its activities go far beyond simply awarding grants and scholarships. DAAD supports the internationalization of German universities, promotes German studies and the German language abroad, assists developing countries in establishing effective universities and advises decision makers on matters of cultural, education and development policy. (DAAD, 2017)

## **Conclusion**

In the field study of the research, the following research question was examined: "how German Higher Education Institutions take the world leading Universities and Research centers position in the future and what kind of measures have to be developed in GHEI to achieve this goal?" From these questions, Internationalization challenge become a key concept according to participants and in this paper, internalization strategies of the German Higher Education institutions are examined from the perspectives of administrators of these institutions. During the interviews quality management, capacity building for research, competitiveness and diversity management of the German Higher Education institutions are mostly mentioned subjects during the internalization process. Participants' comments are analyzed with the current institutions which are taking an active part in these issues, compared and explained during the results part.

According to these analyses, participants mentioned that Quality Management in German Higher Education Institutions are above the EU standards and therefore quality issue is not an obstacle during the internationalization of the German Higher Education Institutions. On the other hand, the majority of the participants mentioned funding research activities with third party support as a crucial subject and universities need such financial support during the internationalization process. 17 out of 20 participants highlighted that their budget is enough for teaching activities but not for research activities. That is why funding research activities and expanding research capacity level of Universities is a necessity during the internationalization process of the German Higher Education Institutions and several institutions and some other private foundations have tried to fulfill this gap. EU funds are also another source and, therefore, German Higher Education Institutions tried to be more active in this point. The third highlighted challenge against internationalization in interviews is the increasing competitiveness of the German Higher Education Institutions in the international markets. In general, the majority of the participants mentioned that global competition has become a challenge in the future of German Higher Education System. To deal with this issue increasing English courses, cooperating with other international higher education institutions and improving strategies to get the best brains to Germany are mentioned as strategies by the participants. Local competition is also mentioned especially in some specific fields like law or theater which is only carried out in the German language and also in some common programs. Several institutions and some important initiatives like GATE play important role and help universities to become more attractive in international markets. The last subject mentioned by the participants is the diversity management issue in German Higher Education Institutions. All participants accepted that it is an ongoing challenge today and in the future. The German Academic Exchange Service (DAAD) tried to increase the foreign students' numbers in Germany and the number of German Students and academics in their international studies by giving several scholarships. The number of foreign students in Germany is decreasing according

to OECD reports and only participants from Arts, Film and Music universities mention that the international students make up more than 20% of all students.

The success of the mentioned strategies and the above mentioned organizations will be seen in the future. However, GHES is a very dynamic system and update itself according to the new changes in the world. Therefore, such researches have to be repeated in the future and the progress of the current steps and new developments have to be measured by the educational scientists for more reliable data.

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