

## Chapter 5

# Cognitive outcomes of theatre education

*This chapter reviews the research on the effects of theatre education on cognitive outcomes: general academic achievement and verbal skills. There is clear causal evidence that training in classroom drama improves a wide range of verbal abilities, including reading and story comprehension.*

**T**heatre training involves memorisation of verbal scripts and performance of these scripts. Many researchers have examined whether acting on stage, or informally acting out stories in the classrooms, strengthens verbal skills or other kinds of academic skills, and whether acting out texts deepens students understanding of these texts. Research on the impact of theatre education on other academic skills has focussed on verbal skills. While the development of verbal skills could lead to an improvement in other subjects such as mathematics or science, just because better reading, writing or text understanding helps in any subject, no obvious theoretical reason leads to think that theatre education will improve arithmetic or geometric skills, or scientific skills. It would seem that the kinds of habits of mind to be learned by training in theatre are skill in understanding one's own and others' minds, skill in regulating one's emotions, and a tendency towards empathy, but these are not cognitive outcomes, and we address these in the chapter on social outcomes.

This chapter reviews studies searching an impact of theatre education on general academic achievement and verbal outcomes such as reading, vocabulary and text understanding.

## Theatre education and general academic achievement

Theatre education could arguably raise general academic achievement through two main mechanisms: the development of attitudes and habits of mind that spill over all academic subjects; and an improvement in reading and understanding that can be applied to other disciplines and to taking tests.

### **REAP analyses of theatre education and general academic achievement**

Vaughn and Winner (2000) compared the SAT scores of students who did and did not take theatre classes in high school as part of the Reviewing Education and the Arts Project (REAP). (The SAT is the exam taken for admission to US colleges and universities.) Like for other arts forms, students with theatre classes had better SAT verbal and maths scores than students with no arts classes (but rather similar to students taking other arts forms). The difference in verbal SAT between students with theatre education and no arts is bigger than for any other art form (over 64 and 53 points for acting and drama appreciation, respectively) and about the same for maths SAT scores. Students taking acting classes have better verbal and maths scores than those trained in drama appreciation. T-tests comparing mean verbal SAT scores over 10 years for students who took theatre classes vs. those who took no arts classes proved highly significant. No causal conclusions about the effects of music classes on SAT scores can be drawn since these analyses are based on correlational data.

### **Post-REAP quasi-experimental studies of theatre education and general academic achievement**

We found three quasi-experimental studies post-REAP that examined the effect of theatre on general academic skills (Table 5.1). In two studies results were mixed and inconclusive; one study showed a positive effect.

Fleming, Merrell and Tymms (2004) conducted a quasi-experimental study with elementary school children taking drama classes that were integrated with writing. Children were assessed after one and two years of the intervention and compared to children in matched control schools (Fleming, Merrell and Tymms, 2004) on a range of academic outcomes. Children in the drama group improved in maths skills but did not improve in verbal skills or on a non-verbal ability test assessing pattern recognition. No explanation or theory was provided for why theatre might be related to improved maths skills, and it would seem difficult to generate a plausible hypothesis for such a finding, especially as verbal skills did not improve and thus could not be the mediator of the improvement. Thus we believe this finding calls out for replication.

Rousseau, Benoit, Gauthier, Lacroix, Alain, Rojas, Moran and Bourassa (2007) studied immigrant and refugee students at a high school in Montreal enrolled in drama classes in which they learned to act out their personal stories. These students were compared to a control group not receiving this kind of intervention. No overall improvements in academic outcomes were found: males but not females

in the experimental group improved in French and maths. These results appear inconsistent and difficult to use to support the hypothesis that drama intervention improves academic skills. However, they point to the importance of gender and social dimensions in the effect of arts education, assuming that the reason for the effect is mainly motivational.

A third study, from Turkey, compared science understanding outcomes when 12-13 year old students were taught “creative drama-based” instruction in science vs. traditional instruction in science (Cokadar and Yilmaz, 2010). Classes (but not students) were randomly assigned to drama-integration vs. control classes and both classes were taught by the same science teacher. Students received a total of eight class hours of science over the course of three weeks (three 45-minute classes per week). The same topics were taught in both groups: ecosystems and matter cycles. In the creative drama group, students were asked to represent scientific concepts through movement. In the control group, lessons were delivered via lecture and discussion. The creative drama group showed greater gains in scientific concept understanding than did the traditional group. Groups did not differ in terms of attitudes towards science. The researchers suggest that the benefit of creative drama-based instruction comes from the fact that it is less passive than traditional learning, and may also be more enjoyable. We have included this study in this section of the report since the kind of science understanding assessed here involved understanding of verbally presented material.

Table 5.1. **Three quasi-experimental studies examining theatre education and general academic skills**

Study	Positive results	Negative/ inconclusive results
Fleming, Merrell and Tymms (2004)		X
Rousseau et al. (2007)		X
Cokadar and Yilmaz (2010)	X	

We conclude that there is no clear evidence yet to support the claim that training in theatre improves general academic skills. There is an association between theatre classes and higher academic scores, but it is not necessarily caused by theatre education: it is as plausible that students with higher academic achievement are more likely to study theatre than are students with low academic achievement.

## Theatre education and verbal skills

The most well-researched arts to academics transfer literature focuses on the effects of “classroom drama” on verbal skills. Classroom drama refers to using acting techniques within the regular classroom curriculum (rather than the actual production of plays).

Kardash and Wright (1986) meta-analysed 16 studies of classroom drama and found positive relationships between drama and reading, oral language development, self-esteem, moral reasoning and various drama skills (with an average effect size of  $r = .32$ , equivalent to  $d = .67$ ).

A second meta-analysis was conducted by Conard (1992) on the effect of classroom drama on verbal achievement, self-concept, and creativity. This analysis combined 20 studies, six of which were included in Kardash and Wright's analysis. Again a positive effect was found, with an average effect size of  $r = .23$  (equivalent to  $d = .48$ ).

Neither of the two previous meta-analyses teased apart specific components of classroom drama that might influence academic achievement. Nor did these previous studies separate the different kinds of outcomes that were affected and so were not able to determine which area or areas of academic achievement were more strongly related to classroom drama.

### ***REAP meta-analyses of quasi-experimental and experimental studies of the effects of theatre education on verbal skills***

Podlozny (2000) meta-analysed 80 quasi-experimental and experimental studies (combined) assessing the effect of classroom drama on verbal achievement (listed in Table 5.2). No difference was found, in results, between the quasi- and the true-experimental studies. The studies tested and compared the effect of classroom drama on seven distinct verbal outcomes: story understanding (oral measures); story understanding (written measures); reading achievement; reading readiness; oral language development; vocabulary; and writing. Podlozny classified studies in terms of whether they directly tested material students had actually enacted in their drama sessions (direct) or whether tests were of entirely new material (transfer). This distinction was made to determine whether enacting a story simply helped children better read, understand, and recall a particular story that they had acted out, or whether the experience of acting out a story helped children's verbal skills more generally.

In 17 studies with oral recall outcomes, the drama group heard and enacted the stories and the control group heard but did not act out the stories. Students were then tested orally on story understanding and recall.

In 14 studies with written recall outcomes, the drama group read and then enacted the stories while the control group read, then discussed, and were drilled on vocabulary from the stories. Children took written tests on story understanding and recall. They were tested only on stories that had been taught.

In 20 studies with reading achievement outcomes, the drama group typically read a story or play and enacted it while the control group simply continued with their regular reading classes. Both groups were then given a standardised reading

comprehension test. Thus in this body of studies children were always tested on new material. Hence, any effect demonstrates transfer of reading comprehension skills to new material.

In 18 studies with reading readiness outcomes, the drama group heard a story and acted it out, while the control group either heard the same story and discussed but did not enact it, re-enacted themes from field trips or other experiences (and hence did not hear the story), or engaged in cut and paste and categorising activities (here they neither heard the story nor engaged in any enactment). This body of studies again only tested children on new material.

In 20 studies with oral language developmental outcomes, students in the drama group typically engaged in creative dramatics (storytelling, role-playing, puppetry) as well as discussion while the control group watched filmstrips and engaged in arts other than drama. Later the oral language of all children was assessed, sometimes when talking about new material, other times when talking about the stories that they had enacted.

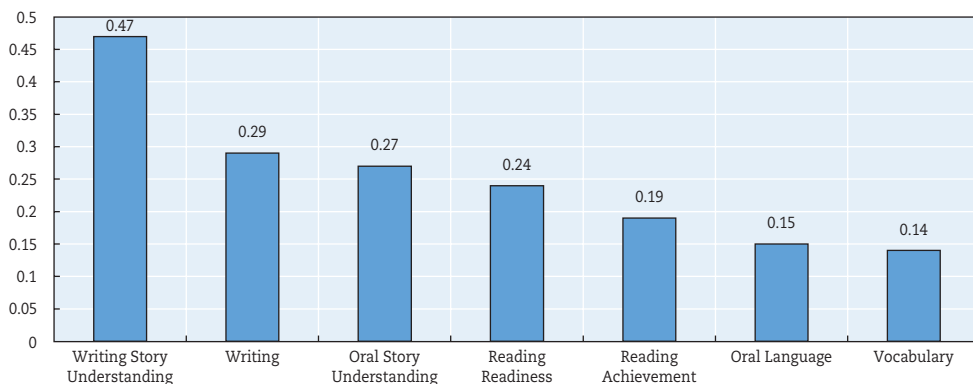
In 10 vocabulary studies, children in the drama group engaged in creative drama activities, including role play, pantomime, movement, and improvised dialogue, while the control group had no special treatment. Later all children were given a vocabulary test, sometimes with words from the stories that had been taught and other times with new words. In eight studies with writing skills outcomes, writing samples were assessed for skills such as audience awareness, story structure (beginning, middle, and end), organisation, and elaboration. Typically children in the drama group first participated in a discussion about writing, and then engaged in improvisation, pantomime, and movement, developed story ideas, improvised story scenes, and drafted stories. The control group also participated in a discussion about writing, but then they simply continued with their regular language arts programme before drafting their stories. Stories were analysed according to a narrative writing scale. In some of the studies, children wrote stories related to themes they had enacted. In others, they wrote stories on new material.

Classroom drama had a strong positive causal effect on six of the seven verbal outcomes examined (Figure 5.1). The largest effect size was for story understanding as measured by written tests, where a mean weighted effect size of  $r = .47$  was found (equivalent to a  $d$  between 1.0 and 1.1), and the  $t$ -test of the mean  $Z_r$  was highly significant, showing that this finding can be generalised to new studies on this question. Thus, when children act out stories rather than simply read them to themselves, their understanding of the story is stronger.

Studies assessing the effect of drama on oral language also yielded a strong mean weighted effect size ( $r = .15$ , equivalent to a  $d$  between .3 and .4), followed by story understanding as measured orally, reading readiness, writing, and reading achievement ( $r = .27, .24, .19$ , respectively, equivalent to  $d$ s of .56, .5, .6, .4, respectively). All of these effects were robust:  $t$ -tests of their mean  $Z_r$ s indicate that the results generalise to future studies, and none of the confidence intervals

spanned zero. Vocabulary was also enhanced (mean weighted  $r = .14$ , equivalent  $d$  between .2 and .3), but unlike the other six effect sizes, this one was not statistically significant: the  $t$ -test of the mean  $Zr$  was not significant, and the 95% confidence interval for the mean effect size found spanned zero.

Figure 5.1. **Strengthening verbal skills through theatre education:  
A clear link**



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Note: All results are statistically significant, except for "vocabulary".

Source: Podlozny (2000).

While Podlozny's (2000) seven analyses demonstrated higher effect sizes for material studied directly, the analyses also showed that drama helps learners understand *new* texts not enacted. This is the most surprising finding of these meta-analyses. As mentioned in the introduction, the transfer of skills from one domain to another is generally not thought to be automatic: it needs to be taught (Salomon and Perkins, 1989). In the field of classroom drama, however, transfer appears to be naturally designed into the curriculum, even if teachers are not labeling it as such. If teachers of classroom drama did more to teach explicitly for transfer, these effects might be even stronger.

Given the strength of the REAP meta-analysis of classroom drama and verbal outcomes, we conclude that there is clear causal evidence that training in classroom drama improves verbal abilities, despite the failure of two of the three post-REAP studies included above in the section on theatre and general academic skills. An additional post-REAP study conducted in several European countries found a positive impact of theatre and drama education on verbal skills, as measured by students' self-reports and their teachers' reports, in line with the REAP findings (DICE, 2010) (see Box 9.3).

Table 5.2. **Theatre education and story understanding: Oral measures**

Study	Positive relationship	Mixed, null, or negative relationship
Aoki (1977)	X	
Dansky (1975/1980)	X	
Galda (1983)		X
Marbach and Yawkey (1980)		X
Milner (1982)	X	
Page (1983)		X
Parks and Rose (1997)	X	
Pellegrini (1984a)	X	
Pellegrini and Galda (1982)	X	
Rappoport (1989)	X	
Saltz, Dixon and Johnson (1977)		X
Weidner (1993)		X
Williamson and Silvern (1990)	X	
Williamson and Silvern (1992)	X	
Wright and Young (1986)		X
Yawkey (1980a)	X	
Yawkey and Yawkey (1979)		X

Note: The full results are presented in Table 5.A1.1.

Source: Podlozny (2000).

Table 5.3. **Theatre education and story understanding: Written measures**

Study	Positive relationship	Mixed, null, or negative relationship
Byerly (1994)		X
Dupont (1992)	X	
Goodman (1991)		X
Gray (1987)	X	
Henderson and Shanker (1978)	X	
Page (1983)		X
Pellegrini (1984a)	X	
Pellegrini and Galda (1982)	X	
Ranger (1995)	X	
Rosen and Koziol (1990)		X
Silvern, Williamson and Waters (1983)		X
Smith (1993)		X
Steinly (1989)	X	
Williamson and Silvern (1992)		X

Note: The full results are presented in Table 5.A1.2.

Source: Podlozny (2000).

Table 5.4. **Theatre education and reading achievement**

Study	Positive relationship	Mixed, null, or negative relationship
Allen (1968)	X	
Aoki (1977)		X
Bennett (1982)		X
Blacharski (1985)	X	
Burke (1980)		X
Carlton (1963)	X	
Carlton and Moore (1966)	X	
Dupont (1992)		X
Gourgey, Bosseau and Delgado (1985)	X	
Jackson (1991)		X
Karafelis (1986)		X
Millin (1996)	X	
Myerson (1981a)		X
Myerson (1981b)		X
Pappas (1979)		X
Parks and Rose (1997)	X	
Pate (1977)	X	
Rappoport (1989)		X
Smith (1993)		X
Vogel (1975)		X

Note: The full results are presented in Table 5.A1.3.

Source: Podlozny (2000).

Table 5.5. **Theatre education and oral language**

Study	Positive relationship	Mixed, null, or negative relationship
Cullinan, Jaggar, Strickland (1974)		X
Dansky (1975/1980)		X
de la Cruz (1996)	X	
Dunn (1977)		X
Faires (1976)		X
Haley (1978)	X	
Levy, Wolfgang and Koorland (1992)		X
Lovinger (1974)	X	
Lunz (1974)	X	
McDonald (1993)		X
Millin (1996)		X
Niedermeyer and Oliver (1972)		X
Norton (1973)	X	
Parks and Rose (1997)		X
Snyder-Greco (1983)	X	
Stewig and McKee (1980)	X	
Stewig and Young (1978)	X	
Vitz (1984)	X	
Yawkey and Yawkey (1979)		X
Youngers (1977)		X

Note: The full results are presented in Table 5.A1.4.

Source: Podlozny (2000).



Table 5.6. **Theatre education and vocabulary**

Study	Positive relationship	Mixed, null, or negative relationship
Allen (1968)		X
Bennett (1982)		X
Gourgey, Bosseau and Delgado (1985)	X	
Page (1983)		X
Page (1983)		X
Pappas (1979)		X
Pate (1977)	X	
Smith (1993)		X
Smith, Dalglish and Herzmark (1981)		X
Tucker (1971)	X	

Note: The full results are presented in Table 5.A1.5.

Source: Podlozny (2000).

Table 5.7. **Theatre education and writing achievement**

Study	Positive relationship	Mixed, null, or negative relationship
Carson (1991)	X	
Dunnagan (1990)		X
Knudson (1970)		X
Moore and Caldwell (1990)	X	
Moore and Caldwell (1993)	X	
Roubicek (1983)	X	
Wagner (1986)	X	
Wagner (1986)	X	

Note: The full results are presented in Table 5.A1.6.

Source: Podlozny (2000).

Table 5.8. **Theatre education and reading readiness**

Study	Positive relationship	Mixed, null, or negative relationship
Adamson (1981)	X	
Blank (1953)	X	
Brown (1990)	X	
Christie (1983)		X
Christie and Enz (1992)		X
Dever (1993)		X
Hensel (1973)	X	
Lawrence (1985)		X
Levy, Schaefer and Phelps (1986)		X
Milner (1982)		X
Saltz and Johnson (1977)	X	
Saltz, Dixon and Johnson (1974)		X
Smith and Syddall (1978)		X
Smith Dalglish and Herzmark (1981)		X
Strickland (1973)	X	
Tucker (1971)		X
Wright and Young (1986)		X
Yawkey (1980b)	X	

Note: The full results are presented in Table 5.A1.7.

Source: Podlozny (2000).

## References

- Adamson O'Toole, D. (1981), *Dramatization of Children's Literature and Visual Perceptual Kinesthetic Intervention for Disadvantaged Beginning Readers*, Doctoral Dissertation, Northwestern State University of Louisiana.
- Allen Godwin, E. (1968), *An Investigation of Change in Reading Achievement, Self-Concept, and Creativity of Disadvantaged Elementary School children Experiencing Three Methods of Training*, Doctoral Dissertation, University of Southern Mississippi.
- Aoki, E.M. (1977), "The effects of active student-initiated responses on literal and nonliteral reading comprehension and attitudes toward reading of third-grade students", University of Washington, ERIC, ED 172176.
- Bennett, O.G. (1982), *An Investigation into the Effects of a Creative Dramatics in Developing Voice, Vocabulary, and Personality in the Primary Grades*, Doctoral Dissertation, Georgia State University.
- Blacharski, C.S. (1985), *Improving Reading Comprehension of Basic Students by Orally Reading High Level Material*, [S.l.], Distributed by ERIC Clearinghouse.
- Blank, W.E. (1953), *The Effectiveness of Creative Dramatics in Developing Voice, Vocabulary, and Personality in the Primary Grades*, Doctoral Dissertation, University of Denver, Colorado.
- Brown, V.L. (1990), *Integrating Drama and Sign Language: A Multisensory Approach to Language Acquisition and Its Effects on Disadvantaged Preschool Children*, Doctoral Dissertation, New York University.
- Burke, J.J. (1980), *The Effect of Creative Dramatics on the Attitudes and Reading Abilities of Seventh Grade Students*, Doctoral Dissertation, Michigan State University.
- Byerly, S.L. (1994), "Generating greater learning gains through dramatization in the classroom", distributed by ERIC Clearinghouse, ED 372426.
- Carlton, L. (1963), *A Report on Self-Directive Dramatization in the Regular Elementary Classroom and Relationships Discovered with Progress in Reading Achievement and Self-Concept Changes*, Doctoral Dissertation, University of Houston, Texas.
- Carlton, L., R.H. Moore and Illinois State University (1965), *A study of the effects of self-directive dramatization on the progress in reading achievement and self-concept of culturally disadvantaged elementary school children*, Distributed by ERIC Clearinghouse.
- Carson, S.A. (1991), *The Effect of Thematic Fantasy Play upon Development of the Concept of Beginning, Middle, and End as First-Graders Write in Response to Literature*, Doctoral Dissertation, The University of Oklahoma.
- Christie James, F. (1983), "The effects of play tutoring on young children's cognitive performance", *Journal of Education Research*, Vol. 6/6, pp. 326-330.

- Christie James, F. and B.J. Enz (1992), "The effects of literacy play interventions on preschoolers: Play patterns and literacy development", *Early Education and Development*, Vol. 3/3, pp. 205-20.
- Cokadar, H. and G.C. Yilmaz (2010), "Teaching ecosystems and matter cycles with creative drama activities", *Journal of Science Education and Technology*, Vol. 19/1, pp. 80-89.
- Conard, F. (1992), *The Arts in Education and a Meta-Analysis*, Doctoral Dissertation, Purdue University.
- Cullinan, B.E., A.M. Jaggar and D. Strickland (1974), "Language expansion for black children in the primary grades: A research report", *Young Children*, Vol. 29/2, pp. 98-112.
- Dansky, J.L. (1980), "Cognitive consequences of sociodramatic play and exploration training for economically disadvantaged preschoolers", *Journal of Child Psychology and Psychiatry and Allied Disciplines*, Vol. 21/1, pp. 47-58.
- Deasy, R.J. (ed.) (2002), *Critical Links: Learning in the Arts and Student Academic and Social Development*, Arts Education Partnership, Washington, DC.
- De la Cruz, R.E. (1993), *The Effects of Creative Drama on the Social and Oral Language Skills of Children with Learning Disabilities*, Doctoral Dissertation, University of North Colorado.
- Dever, M.T. (1993), *Sociodramatic Play as a Context for Print Literacy Learning of Divergent Readers and Writer*, Doctoral Dissertation, University of North Colorado.
- DICE Consortium (2010), *The DICE Has Been Cast. Research Findings and Recommendations on Educational Theatre and Drama*, Edited by A. Cziboly, [www.dramanetwork.eu/file/Policy%20Paper%20long.pdf](http://www.dramanetwork.eu/file/Policy%20Paper%20long.pdf).
- Dunn, J.A. (1977), *The Effect of Creative Dramatics on the Oral Language Abilities and Self-Esteem of Blacks, Chicanos, and Anglos in the Second and Fifth Grads*, Doctoral Dissertation, University of Colorado at Boulder.
- Dunnagan, K.L. (1990), *Seventh-Grade Students' Audience Awareness in Writing Produced Within and Without the Dramatic Mode*, Doctoral Dissertation, The Ohio State University.
- DuPont, S. (1992), "The effectiveness of creative drama as an instructional strategy to enhance the reading comprehension skills of fifth-grade remedial readers", *Reading Research and Instruction*, Vol. 31/3, pp. 41-52.
- Faires Myers, T. (1976), *The Effect of Creative Dramatics on Language Development and Treatment Progress of Children in a Psychotherapeutic Nursery*, Doctoral Dissertation, University of Houston.

- Fleming, M., C. Merrell and P. Tymms (2004), "The impact of drama on pupils' language, mathematics, and attitude in two primary schools", *Research in Drama Education*, Vol. 9/2, pp. 177-197.
- Galda, L. (1983), "The effect of dramatic play on the story retellings of second grade children", *Journal of Instruction Psychology*, Vol. 10/4, pp. 200-206.
- Goodman, J.A. (Jr.) (1991), *A Naturalistic Investigation of the Relationship between Literacy Development and Dramatic Play in 5-year-old Children*, Doctoral Dissertation, Peabody College, Nashville, TN.
- Gourgey, A.F., J.B. Bosseau and J.D. Delgado (1985), "The impact of an improvisational dramatics program on student attitudes and achievement", *Children's Theatre Review*, Vol. 34/3, pp. 9-14.
- Gray, M.A. (1987), "A frill that works: Creative dramatics in the basal reading lesson", *Reading Horizon*, Vol. 28/1, pp. 5-11.
- Haley, G.A.L. (1978), *Training Advantaged and Disadvantaged Black Kindergarteners in Socio-Drama: Effects on Creativity and Free Recall Variables of Oral Language*, Doctoral Dissertation, University of Georgia.
- Henderson, L.C. and J.L. Shanker (1978), "The use of interpretive dramatics versus basal reader workbooks for developing comprehension skills", *Reading World*, Vol. 17/3, pp. 239-43.
- Hensel, N.H. (1973), *The Development, Implementation, and Evaluation of Creative Dramatics Program for Kindergarten Children*, Doctoral Dissertation, University of Georgia.
- Jackson, J.T. (1991), *The Effects of Creative Dramatics Participation on the Reading Achievement and Attitudes in Elementary Level Children with Behavioral Disorders*, Doctoral Dissertation, Southern Illinois University, Carbondale.
- Karafelis, P. (1986), *The Effects of the Tri-Art Drama Curriculum on the Reading Comprehension of Students with Varying Levels of Cognitive Ability*, Doctoral Dissertation, University of Connecticut.
- Kardash, C. and L. Wright (1986), "Does creative drama benefit elementary school students? A meta-analysis", *Youth Theatre Journal*, Vol. 1/3, pp. 11-18.
- Knudson, R.L. (1970), *The Effect of Pupil-Prepared Videotaped Dramas upon the Language Development of Selected Rural Children*, Ed. Doctoral Dissertation, Boston University School of Education.
- Lawrence, D. (1985), "Improving self-esteem and reading", *Educational Research*, Vol. 27/3, pp. 194-200.
- Levy, A.K., L. Schaefer and P.C. Phelps (1986), "Increasing preschool effectiveness: Enhancing the language abilities of 3- and 4-year-old children through planned sociodramatic play", *Early Childhood Research Quarterly*, Vol. 1/2, pp. 133-140.

- Lovinger, S.L. (1974), "Socio-dramatic play and language development in preschool disadvantaged children", *Psychology in the Schools*, Vol. 11/3, pp. 313-320.
- Lunz, M.E. (1974), "Creative dramatics and communication effectiveness: The study of a process", *Children's Theatre Review*, Vol. 13/3, pp. 3-6.
- Marbach, E.S. and T.D. Yawkey (1980), "The effect of imaginative play actions on language development in five-year-old children", *Psychology in the Schools*, Vol. 17/2, pp. 257-263.
- McDonald, M.K. (1993), *Dramatization of Children's Original, Dictated Stories: The Effects upon Oral Fluency and Story Complexity*, Doctoral Dissertation, University of Connecticut.
- Millin, S.K. (1996), *Effects of Readers Theatre on Oral Reading Ability and Reading Attitudes of Second-Grade Title I Students*, Doctoral Dissertation, West Virginia University.
- Milner, S.C. (1982), *Effects of Curriculum Intervention Program Using Fairy tales on Preschool Children's Empathy level, Reading Readiness, Oral-Language Development, and Concept of a Story*, Doctoral Dissertation, University of Florida.
- Moore, B.H. and H. Caldwell (1993), "Drama and drawing for narrative writing in primary grades", *Journal of Educational Research*, Vol. 87/2, pp. 100-110.
- Moore, B.H. and H. Caldwell (1990), "The art of planning: Drama as Rehearsal for writing in the primary grades", *Youth Theatre Journal*, Vol. 4/3, pp. 13-20.
- Myerson, E.S. (1981), *Academic, Affective, and Aesthetic Outcomes of a Sixth Grade Creative Dramatics Program: A Quantitative and Qualitative Evaluation*, Doctoral Dissertation, Clark University.
- Niedermeyer, F.C. and L. Oliver (1972), "The development of young children's dramatic and public speaking skills", *Elementary School Journal*, Vol. 73/2, pp. 95-100.
- Norton, N.J. (1973), *Symbolic Arts: The Effect of Movement and Drama upon the Oral Communication of Children in Grade Two*, Ed. Doctoral Dissertation, Boston University School of Education.
- Page, A. (1983), *Children's Story Comprehension as a Result of Storytelling and Story Dramatization: A Study of the Child as Spectator and as Participant*, Doctoral Dissertation, University of Massachusetts.
- Pappas, H. (1979), *Effect of Drama-Related Activities on Reading Achievement and Attitudes of Elementary Children*, Doctoral Dissertation, Lehigh University.
- Parks, M. and D. Rose (1997), *The Impact of Whirlwind's Reading Comprehension through Drama Program on 4th Grade Students' Reading Skills and Standardized Test Scores*, 3-D Group, Chicago.
- Pate, T.L. (1977), *An Investigation of the Effects of Creative Drama upon Reading Ability, Verbal Growth, Vocabulary Development, and Self-Concept of Secondary School Students*, Doctoral Dissertation, East Texas State University.

- Pellegrini, A.D. (1984a), "Identifying causal elements in the thematic-fantasy play paradigm", *American Educational Research Journal*, Vol. 21/3, pp. 691-701.
- Pellegrini, A.D. (1984b), "The effect of dramatic play on children's generation of cohesive text", *Discourse Processes*, Vol. 7/1, pp. 56-67.
- Podlozny, A. (2000), "Strengthening verbal skills through the use of classroom drama: A clear link", *Journal of Aesthetic Education*, Vol. 34/3-4, pp. 91-104.
- Ranger, L. (1995), *Improving Reading Comprehension through a Multifaceted Approach Utilizing Drama*, MA Project, Kean College of New Jersey.
- Rappoport, K.S. (1990), *The Effects of Creative Dramatics on Reading Comprehension and Language/Thought of Second-Grade Children*, Doctoral Dissertation, University of Kansas.
- Rosen, R.S. and S.M. Koziol, Jr. (1990), "The relationship of oral reading, dramatic activities, and theatrical production to student communication skills, knowledge, comprehension, and attitudes", *Youth Theatre Journal*, Vol. 4/3, pp. 7-10.
- Roubicek, H.L. (1983), *An Investigation of Story Dramatization as a Pre-Writing Activity*, Doctoral Dissertation, University of Maryland.
- Rousseau, C., M. Benoit, M.F. Gauthier, L. Lacroix, N. Alain, M.V. Rojas, A. Moran and D. Bourassa (2007), "Classroom drama therapy program for immigrant and refugee adolescents: A pilot study", *Clinical Child Psychology and Psychiatry*, Vol. 12/3, pp. 451-465.
- Saltz, E. and J. Johnson (1974), "Training for thematic-fantasy play in culturally disadvantaged children: Preliminary results", *Journal of Educational Psychology* Vol. 66/4, pp. 623-630.
- Saltz, E., D. Dixon and J. Johnson (1977), "Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control", *Child Development*, Vol. 48/2, pp. 367-380.
- Silvern, S.G., P.A. Williamson and B. Waters (1983), "Play as a mediator of comprehension: An alternative to play training", *Educational Research Quarterly*, Vol. 7/3, pp. 16-21.
- Smith, M.R.L. (1993), *Effects of Scripting Readers' Theater, Participatory Basal Activities, and Customary Pull-Out Instruction by Chapter I Students on Comprehension, Vocabulary, Participation, and Attitude*, Doctoral dissertation, Peabody College for Teachers of Vanderbilt University.
- Smith, P.K. and S. Syddall (1978), "Play and nonplay tutoring in preschool children: Is it play or tutoring which matters?", *British Journal of Educational Psychology*, Vol. 48/3, pp. 315-325.

- Smith, P.K., M. Dagleish and G. Herzmark (1981), "A comparison of the effects of fantasy play tutoring and skills tutoring in nursery classes", *International Journal of Behavioral Development*, Vol. 4/4, pp. 421-441.
- Snyder-Greco, T. (1983), "The effects of creative dramatic techniques on selected language functions of language-disordered children", *Children's Theater Review*, Vol. 32/2, pp. 9-13.
- Steinly, K.D. (1989), *Story Dramatization: A Technique Designed to Increase Reading Comprehension and Enhance Attitude toward the Subject of Reading*, Doctoral Dissertation, University of Maryland, College Park.
- Stewig, J.W. and J.A. McKee (1980), "Drama and language growth: A replication study", *Children's Theatre Review*, Vol. 29/3, pp. 1-14.
- Stewig, J.W. and L. Young (1978), "An exploration of the relation between creative drama and language growth", *Children's Theatre Review*, Vol. 27/2, pp. 10-12.
- Strickland, D.S. (1973), "A program for linguistically different, black children", *Research in the Teaching of English*, Vol. 7/1, pp. 79-86.
- Tucker Klineman, J. (1971), *The Use of Creative Dramatics as an Aid in Developing Reading Readiness with Kindergarten Children*, Doctoral Dissertation, University of Wisconsin.
- Vaughn, K. and E. Winner (2000), "SAT scores of students with four years of arts: What we can and cannot conclude about the association", *Journal of Aesthetic Education*, Vol. 34/3-4, pp. 77-89.
- Vitz, K. (1984), "The effects of creative drama in English as a second language," *Children's Theatre Review*, Vol. 33/2, pp. 23-26.
- Vogel, M.R. (1975), *The Effect of a Program of Creative Dramatics on Young Children with Specific Learning Disabilities*, Doctoral Dissertation, Fordham University.
- Wagner, B.J. (1986), *The Effects of Role Playing n Written Persuasion: An Age and Channel Comparison of Fourth and Eighth Graders*, Doctoral Dissertation, University of Illinois at Chicago.
- Weidner Fowler, D. (1993), *The Effect of Creative Dramatics Activities on the Story Retellings of Kindergartners*, Master's Thesis, University of North Texas.
- Williamson, P.A. and S.B. Silvern (1992), "'You can't- be grandma; You're a boy': Events within the thematic fantasy play context which contribute to story comprehension", *Early Childhood Research Quarterly*, Vol. 7/1, pp. 75-93.
- Williamson, P.A. and S.B. Silvern (1990), "The effects of play training on the story comprehension of upper primary children", *Journal of Research of Childhood Education*, Vol. 4/2, pp. 130-34.

- Wright, E.N. and R.E. Young (1986), *Arts in Education: The Use of Drama and Narrative: A Study of Outcomes*, Ontario Department of Education, Toronto, ERIC, ED 273545).
- Yawkey, M.L. and T.D. Yawkey (1978), "An investigation of the effects of forms of imaginative play on language development and language comprehension in young children", paper presented at the NERA Meeting, Ellenville, NY, ERIC, ED 284226.
- Yawkey, T.D. (1980a), "An investigation of imaginative play and aural language development in young children five, six, and seven" in P. Wilkinson (ed.), *Celebration of Play*, St. Martin's Press, New York, NY.
- Yawkey, T.D. (1980b), "Effects of social relationships curricula and sex differences on reading and imaginativeness in young children", *Alberta Journal of Educational Research*, Vol. 26/3, pp. 159-168.
- Youngers, J.S. (1977), *An Investigation of the Effects of experiences in Creative Dramatics on Creativity and Semantic Development in Children*, Doctoral Dissertation, University of Iowa.



## Annex 5.A1

**Supplementary tables**Table 5.A1.1. **Theatre education and story understanding: Oral measures**

Study	N	R	Z (p)
Aoki (1977)	20	.39	.244* (p = .007)
Dansky (1975/1980)	36	.46	.276* (p = .003)
Galda (1983)	36	.00	.00 (p = .50)
Marbach and Yawkey (1980)	60	.07	.55 (p = .29)
Milner (1982)	56	.32	2.39* (p = .008)
Page (1983)	16	.11	.44 (p = .33)
Parks and Rose (1997)	179	.19	2.53* (p = .006)
Pellegrini (1984a)	192	.66	9.17* (p < .0001)
Pellegrini and Galda (1982)	108	.48	5.03* (p < .0001)
Rappoport (1989)	71	.07	2.27* (p = .02)
Saltz, Dixon and Johnson (1977)	54	.12	.90 (p = .18)
Weidner (1993)	30	.25	1.38 (p = .08)
Williamson and Silvern (1990)	75	.19	1.68* (p = .046)
Williamson and Silvern (1992)	120	.23	2.56* (p = .005)
Wright and Young (1986)	240	.10	1.58 (p = .057)
Yawkey (1980a)	240	.18	2.77* (p = .003)
Yawkey and Yawkey (1979)	160	.13	1.64 (p = .05)

Note: N: number of observations; R: effect size; Z(p): statistical significance; \*: significant at  $p < .05$ . See Box 1.2

Source: Podlozny (2000).

Table 5.A1.2. **Theatre education and story understanding: Written measures**

Study	N	R	Z (p)
Byerly (1994)	26	.27	1.39 (p = .08)
Dupont (1992)	51	.77	4.48* (p < .0001)
Goodman (1991)	102	.17	1.24 (p = .11)
Gray (1987)	21	.67	3.09* (p = .001)
Henderson and Shanker (1978)	28	.96	5.07* (p < .0001)
Page (1983)	16	.10	.40 (p = .34)
Pellegrini (1984a)	192	.68	9.36* (p < .0001)
Pellegrini and Galda (1982)	108	.74	7.64* (p < .0001)
Ranger (1995)	50	.52	3.68* (p < .0001)
Rosen and Koziol (1990)	101	.13	1.34 (p = .09)
Silvern, Williamson, Waters (1983)	102	.16	1.58 (p = .057)
Smith (1993)	97	.00	.00 (p = .50)
Steinly (1989)	39	.60	3.72* (p < .0001)
Williamson and Silvern (1992)	120	.11	1.22 (p = .11)

Note: N: number of observations; R: effect size; Z(p): statistical significance; \*: significant at  $p < .05$ . See Box 1.2

Source: Podlozny (2000).

Table 5.A1.3. **Theatre education and reading achievement**

Study	N	R	Z (p)
Allen (1968)	40	.12	.76* (p = .022)
Aoki (1977)	20	.11	.68 (p = .24)
Bennett (1982)	56	-.15	-.92 (p = .18)
Blacharski (1985)	15	.53	3.97* (p < .0001)
Burke (1980)	246	.07	.96 (p = .17)
Carlton (1963)	24	.56	3.52* (p < .0002)
Carlton and Moore (1966)	240	.48	3.02* (p = .001)
Dupont (1992)	51	.21	1.49 (p = .07)
Gourgey, Bosseau and Delgado (1985)	141	.27	4.08* (p < .0001)
Jackson (1991)	34	.27	1.60 (p = .05)
Karafelis (1986)	77	.13	1.14 (p = .13)
Millin (1996)	27	.52	4.02* (p < .0001)
Myerson (1981a)	39	-.01	-.07 (p = .47)
Myerson (1981b)	42	.05	1.12 (p = .13)
Pappas (1979)	237	.02	.37 (p = .36)
Parks and Rose (1997)	179	.19	2.55* (p = .005)
Pate (1977)	160	.25	3.11* (p = .0009)
Rappoport (1989)	71	.11	.92 (p = .18)
Smith (1993)	97	.00	.00 (p = .50)
Vogel (1975)	46	.00	.00 (p = .50)

Note: N: number of observations; R: effect size; Z(p): statistical significance; \*: significant at  $p < .05$ . See Box 1.2

Source: Podlozny (2000).

Table 5.A1.4. **Theatre education and oral language**

Study	N	R	Z (p)
Cullinan, Jaggar, Strickland (1974)	249	-.04	-.30 (p = .38)
Dansky (1975/1980)	36	.25	1.49 (p = .07)
de la Cruz (1996)	35	.44	2.61* (p = .004)
Dunn (1977)	144	.05	.61 (p = .27)
Faires (1976)	16	-.03	-.13 (p = .45)
Haley (1978)	79	.35	2.51* (p = .006)
Levy, Wolfgang and Koorland (1992)	3	.44	.76 (p = .22)
Lovinger (1974)	38	.51	3.14* (p = .0008)
Lunz (1974)	39	.51	3.19* (p = .0007)
McDonald (1993)	32	.18	.99 (p = .16)
Millin (1996)	27	.31	1.63 (p = .05)
Niedermeyer and Oliver (1972)	196	.07	1.18 (p = .12)
Norton (1973)	94	.28	2.76* (p = .003)
Parks and Rose (1997)	179	.11	1.43 (p = .08)
Snyder-Greco (1983)	17	.58	2.39* (p = .008)
Stewig and McKee (1980)	21	.73	3.36* (p < .0005)
Stewig and Young (1978)	20	.43	1.93* (p = .03)
Vitz (1984)	32	.41	2.30* (p = .01)
Yawkey and Yawkey (1979)	160	.00	.00 (p = .50)
Youngers (1977)	259	.05	.77 (p = .22)

Note: N: number of observations; R: effect size; Z(p): statistical significance; \*: significant at  $p < .05$ . See Box 1.2

Source: Podlozny (2000).

Table 5.A1.5. **Theatre education and vocabulary**

Study	N	R	Z (p)
Allen (1968)	40	.04	.24 (p = .40)
Bennett (1982)	56	-.06	-.49 (p = .31)
Gourgey, Bosseau and Delgado (1985)	141	.37	5.55* (p < .0001)
Page (1983)	16	.05	.20 (p = .42)
Page (1983)	19	.09	.38 (p = .35)
Pappas (1979)	237	.02	.29 (p = .39)
Pate (1977)	160	.21	2.59* (p = .004)
Smith (1993)	97	-.20	-1.91* (p = .03)
Smith, Dalglish and Herzmark (1981)	65	-.19	-1.07 (p = .14)
Tucker (1971)	132	.27	3.11* (p = .009)

Note: N: number of observations; R: effect size; Z(p): statistical significance; \*: significant at  $p < .05$ . See Box 1.2

Source: Podlozny (2000).

Table 5.A1.6. **Theatre education and writing achievement**

Study	N	R	Z (p)
Carson (1991)	16	.51	2.03* (p = .02)
Dunnagan (1990)	47	-.23	-1.27 (p = .10)
Knudson (1970)	80	.17	1.54 (p = .06)
Moore and Caldwell (1990)	41	.40	2.57* (p = .005)
Moore and Caldwell (1993)	63	.31	2.48* (p = .006)
Roubicek (1983)	39	.59	5.23* (p < .0001)
Wagner (1986)	154	.30	3.78* (p < .0001)
Wagner (1986)	154	.19	2.32 (p = .01)

Note: N: number of observations; R: effect size; Z(p): statistical significance. See Box 1.2

Source: Podlozny (2000).

Table 5.A1.7. **Theatre education and reading readiness**

Study	N	R	Z (p)
Adamson (1981)	40	.47	2.95* (p = .0001)
Blank (1953)	38	.66	4.06* (p < .001)
Brown (1990)	120	.49	5.32* (p < .001)
Christie (1983)	17	.07	.30 (p = .38)
Christie and Enz (1992)	32	.10	.54 (p = .29)
Dever (1993)	5	-.01	-.01 (p = .49)
Hensel (1973)	58	.46	3.55* (p < .002)
Lawrence (1985)	336	-.02	-.25 (p = .40)
Levy, Schaefer and Phelps (1986)	28	.16	1.17 (p = .12)
Milner (1982)	56	.15	.87 (p = .19)
Saltz and Johnson (1977)	34	.37	2.18* (p = .01)
Saltz, Dixon and Johnson (1974)	56	.21	1.60 (p = .05)
Smith and Syddall (1978)	14	-.03	-.12 (p = .55)
Smith Dagleish and Herzmark (1981)	31	.13	.74 (p = .23)
Strickland (1973)	94	.59	5.69* (p < .0001)
Tucker (1971)	132	.11	1.28 (p = .10)
Wright and Young (1986)	240	.11	1.64 (p = .05)
Yawkey (1980b)	96	.22	2.16* (p = .02)

Note: N: number of observations; R: effect size; Z(p): statistical significance. See Box 1.2

Source: Podlozny (2000).



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