Handout 3.2 Environment – Research Supporting DEC Recommended Practices on Environment

Note: This document does not include an exhaustive list of existing research studies on every recommended practice on interaction, nor do all promising practices have a supporting body of rigorous research evidence. Citations for each of the practices include best available research in the form of research reviews or syntheses as well as the most recent and relevant individual studies evaluating specific DEC Recommended Practices on Environment.

E1. Practitioners provide services and supports in natural and inclusive environments during daily routines and activities to promote the child's access to and participation in learning experiences.

Barton, E. E., Pribble, L. M., & Joseph, J. D. (2015). Evidence-based practices for successful inclusion. In E. E. Barton & B. J. Smith (Eds.), The preschool inclusion toolbox: How to build and lead a high-quality program (pp. 113-132). Baltimore, MD: Brookes Publishing Co.

Dunst, C. J., Bruder, M. B., Trivette, C. M., & Hamby, D. W. (2005). Young children's natural learning environments: Contrasting approaches to early childhood intervention indicate differential learning opportunities. Psychological Reports, 96, 231-234.

Swanson, J., Rabb, M., & Dunst. C. J. (2011). Strengthening family capacity to provide young children everyday natural learning opportunities. Journal of Early Childhood Research, 9, 66-80.

Trivette, C. M., Dunst, C. J., Simkus, A., & Hamby, D. W. (2013). Methods for increasing child participation in everyday learning opportunities. Everyday Child Language Learning Reports, Number 7, 1-7. Retrieved from http://www.cecll.org/download/ECLLReport_7_LearnOps.pdf

E2. Practitioners consider Universal Design for Learning principles to create accessible environments.

Conn-Powers, M., Cross, A. F., Traub, E. K., & Hutter-Pishgahi, L. (2006, September). The universal design of early education: Moving forward for all children. Beyond the Journal: Young Children, 1-9. Retrieved from http://journal.naeyc.org/btj/200609/ConnPowersBTJ.pdf

Dinnebeil, L. A., Boat, M., & Bae, Y. (2013). Integrating principles of universal design into the early childhood curriculum. Dimensions of Early Childhood, 41(1), 3-13.

Horn, E., Palmer, S., Butera, G., & Lieber, J. (2016). Six steps to inclusive preschool curriculum. Baltimore: MD. Paul H. Brookes.

E3. Practitioners work with the family and other adults to modify and adapt the physical, social, and temporal environments to promote each child's access to and participation in learning experiences.

Reszka, S. S., Odom, S. L., & Hume, K. A. (2012). Ecological features of preschools and the social engagement of children with autism. *Journal of Early Intervention, 34*(1), 40-56.

Brown, W. H., & Conroy, & M. A. (2011). Social-emotional competence in young children with developmental delays: Our reflection and vision for the future. *Journal of Early Intervention, 33*(4), 310-322.

Wolery, M., & Hemmeter, M. L. (2011). Classroom instruction: Background, assumptions, and challenges. *Journal of Early Intervention, 33*(4), 371-380.

Nordquist, V. M., Twardosz, S., & McEvoy, M. (1991). Effects if environmental reorganization in classrooms for children with autism. *Journal of Early Intervention, 15*(2), 135-152.

Macy, M. G., & Bricker, D. D. (2007). Embedding individualized social goals into routine activities in inclusive early childhood classrooms. *Early Child Development and Care, 177*(2), 107-120.

Odom, S. L., Buysse, V., & Soukakou, E. (2011). Inclusion for young children with disabilities. *Journal of Early Intervention, 33*(4), 344-356.

Tsao, L., Odom, S., Buysse, V., Skinner, M., West, T., & Vitztum-Komanecki, J. (2008). Social participation of children with disabilities in inclusive preschool programs: Program typology and ecological features. *Exceptionality, 16,* 125-140.

Odom, S. L., Vitztum, J., Wolery, R., Lieber, J., Sandall, S., Hanson, M. J., Beckman, P., Schwartz, I., & Horn, E. (2004). Preschool inclusion in the United States: A review of research from an ecological systems perspective. *Journal of Research in Special Education Needs, 4*(1), 17-49.

King, G., Law, M., King, S., Rosenbaum, P., Kertoy, M. K., & Young, N. L. (2003). A conceptual model of the factors affecting the recreation and leisure participation of children with disabilities. *Physical & Occupational Therapy in Pediatrics, 23,* 63-90.

Guralnick, M. J., Conner, R. T., Hammond, M. A., Gottman, J. M., & Kinnish, K. (1996). Immediate effects of mainstreamed settings on the social interactions and social integration of preschool children. *American Journal on Mental Retardation, 100,* 359-377.

Buysse, V., Goldman, B.D., & Skinner, M. (2002). Setting effects on friendship formation among young children with and without disabilities. *Exceptional Children, 68*(4), 503-517.

Rafferty, Y., Piscitelli, V., Boettcher, C. (2003). The impact of inclusion on language development and social competence among preschoolers with disabilities. *Exceptional Children, 69*(4), 467-479.

Strain, P. S., Schwartz, I. S., & Barton, E. E. (2011). Providing interventions for young children with Autism Spectrum Disorders: What we still need to accomplish. *Journal of Early Intervention, 33*(4), 321-332.

Kellegrew, D. H. (2000). Constructing daily routines: A qualitative examination of mothers with young children with disabilities. *American Journal of Occupational Therapy, 54*, 252-259.

Joseph, G. E., & Strain, P. S. (2003). Comprehensive evidence-based social emotional curricula for young children: An analysis of efficacious adoption potential. *Topics in Early Childhood Special Education, 23*, 65-76.

Dunst, C. J., Bruder, M. B., Trivette, C. M., Hamby, D., Raab, M., & McLean, M. (2001). Characteristics and consequences of everyday natural learning opportunities. *Topics in Early Childhood Special Education, 21*(2), 68-92.

E4. Practitioners work with families and other adults to identify each child's needs for assistive technology to promote access to and participation in learning experiences.

Campbell, P. H., Milbourne, S., Dugan, L. M., & Wilcox, M. J. (2006). A review of evidence on practices for teaching young children to use assistive technology devices. *Topics in Early Childhood Special Education, 26*, 3-13.

Dunst, C. J., Trivette, C. M., Hamby, D. W., & Simkus, A. (2011). Systematic review of studies promoting the use of assistive technology devices by young children with disabilities. *Research Brief* (Tots 'n Tech Research Institute), *8*(1), 1-21. Retrieved from https://tnt.asu.edu/sites/default/files/ResearchBriefVolume8-1.pdf

Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2012). Assistive technology and the communication and literacy development of young children with disabilities. *CELL reviews, 5*(7), 1-13. Retrieved from http://www.earlyliteracylearning.org/cellreviews/cellreviews_v5_n7.pdf

Furumasu, J., Guerette, P., & Tefft, D. (2004). Relevance of the Pediatric Powered Wheelchair Screening Test for children with cerebral palsy. *Dev Med Child Neurol, 46*(7), 468–474.

Jones, M.A., McEwen, I.R. & Hansen, L. (2003). Use of power mobility for a young child with spinal muscular atrophy. *Physical Therapy, 83,* 253-262.

Ragonesi, C.B., Chen, X., Agrawal, S., & Galloway, J. C. (2010). Power mobility and socialization in preschool: A case study of a child with cerebral palsy. *Pediatric Physical Therapy, 22,* 322-329.

E5. Practitioners work with families and other adults to acquire or create appropriate assistive technology to promote each child's access to and participation in learning experiences.

Agrawal, S. K., Chen, X., Ragonesi, C., & Galloway, J. C. (2012). Training toddlers seated on mobile robots to steer using force-feedback joystick. *IEEE Transactions on Haptics, 5*(4), 376–383.

Bottos, M., Bolcati, C., Sciuto, L., Ruggeri, C., & Feliciangeli, A. (2001). Powered wheelchairs and independence in young children with tetraplegia. *Developmental Medicine and Child Neurology, 43*(11), 769–777.

Chen, X., Ragonesi, C., Galloway, J. C., & Agrawal, S. K. (2011). Training toddlers seated on mobile robots to drive indoors amidst obstacles. *IEEE Transactions on Neural Systems and Rehabilitation Engineering, 19*(3), 271–279.

Galloway, J. C., Ryu, J. C., & Agrawal, S. K. (2008). Babies driving robots: Self-generated mobility in very young infants. *Intelligent Service Robotics, 1*(2), 123–134.

Home, A. M., Ham, R., & Nilsson, L. (2003). Provision of Powered Mobility Equipment to Young Children: the Whizz-Kidz Experience. *International Journal of Therapy and Rehabilitation, 10*(11), 511–517.

Huang, H.-H., & Galloway, J. C. (2012). Modified Ride-on Toy Cars for Early Power Mobility. *Pediatric Physical Therapy, 24*(2), 149–154.

Logan, S., & Feldner, H. (2016). Modified Ride-on Car Use by Children With Complex Medical Needs. *Pediatric Physical Therapy, 28*(1), 100–107.

Logan, S., & Huang, H. (2014). Modified ride-on car for mobility and socialization: single-case study of an infant with Down syndrome. *Pediatric Physical Therapy, 26*(4), 418–426.

Lynch, A., Ryu, J.-C., Agrawal, S., & Galloway, J. C. (2009). Power mobility training for a 7-month-old infant with spina bifida. *Pediatric Physical Therapy, 21*(4), 362–8.

Østensjø, S., Carlberg, E. B., & Vllestad, N. K. (2005). The use and impact of assistive devices and other environmental modifications on everyday activities and care in young children with cerebral palsy. *Disability and Rehabilitation, 27*, 849–861. doi:10.1080/09638280400018619

Ragonesi, C. B., Chen, X., Agrawal, S., & Galloway, J. C. (2011). Power mobility and socialization in preschool: Follow-up case study of a child with cerebral palsy. *Pediatric Physical Therapy, 23*(4), 399–406.

Ragonesi, C. B., & Galloway, J. C. (2012). Short-term, early intensive power mobility training: case report of an infant at risk for cerebral palsy. *Pediatric Physical Therapy, 24*(2), 141–8.

Ryan, S. E., Campbell, K. A., Rigby, P. J., Fishbein-Germon, B., Hubley, D., & Chan, B. (2009). The impact of adaptive seating devices on the lives of young children with cerebral palsy and their families. *Archives of Physical Medicine & Rehabilitation, 90*, 27–33. doi:10.1016/j.apmr.2008.07.011

Trivette, C. M., Dunst, C. J., Hamby, D. W., & O'Herin, C. E. (2010). Effect of different types of adaptations on behavior of young children with disabilities. *Tots N Tech Research Brief, 4*(1), 1–25.

E6. Practitioners create environments that provide opportunities for movement and regular physical activity to maintain or improve fitness, wellness, and development across domains.

Anderson, D. I., Campos, J. J., Witherington, David C. Dahl, A., Rivera, M., He, M., Uchiyama, I., & Barbu-Roth, M. (2013). The role of locomotion in psychological development. *Frontiers in Psychology, 4*, 1–16.

Brown, W. H., Googe, H. S., McIver, K. L., & Rathel, J. M. (2009). Effects of teacher-encouraged physical activity on preschool playgrounds. *Journal of Early Intervention, 31*(2), 126-145.

Campbell, K. J., & Hesketh, K. D. (2007). Strategies which aim to positively impact on weight, physical activity, diet and sedentary behaviours in children from zero to five years: A systematic review of the literature. *Obesity Reviews, 8*, 327-338.

Campos, J. J., Anderson, D. I., Barbu-Roth, M. A., Hubbard, E. M., Hertenstein, M. J., & Witherington, D. (2000). Travel Broadens the Mind. *Infancy, 1*(2), 149–219.

Hesketh, K. D., & Campbell, K. J. (2010). Interventions to prevent obesity in 0-5 year olds: An updated systematic review of the literature. *Obesity, 18*(Suppl.1), S27-S35.

Hinkley, T., Crawford, D., Salmon, J., Okelly, A. D., & Hesketh, K. (2008). Preschool children and physical activity: A review of correlates. *American Journal of Preventative Medicine, 34*, 435-441.

Lancing, G. E., & O'Reilly, M. F. (1998). A review of research on physical exercise with people with severe and profound developmental disabilities. *Research in Developmental Disabilities, 19,* 477-492.

Yuill, N., Strieth, S., Roake, C., Aspden, R., & Todd, B. (2007). Brief report: Designing a playground for children with autistic spectrum disorders effects on playful peer interactions. *Journal of Autism & Developmental Disorders, 37,* 1192–1196. doi:10.1007/s10803-006-0241-8