# Treatment Intervention Advisory Committee Review and Determination

**Date**: July 31, 2015

**To:** DHS/DLTC

**From**: Wisconsin Department of Health Services, Treatment Intervention Advisory Committee: Lana Collet-Klingenberg, Ph.D. (chairperson)

**RE**: Determination of GemIIni Systems as a proven and effective treatment for individuals with autism spectrum disorder and/or other developmental disabilities

☒ This is an initial review

☐ This is a re-review. The initial review was

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## Section One: Overview and Determination

Please find below a statement of our determination as to whether or not the committee views GemIIni Systems (Video Modeling) as a proven and effective treatment for children with autism spectrum disorder and/or other developmental disabilities. In subsequent sections you will find documentation of our review process including a description of the proposed treatment, a synopsis of review findings, the treatment review evidence checklist, and a listing of the literature considered. In reviewing treatments presented to us by DHS/DLTC, we implement a review process that carefully and fully considers all available information regarding a proposed treatment. Our determination is limited to a statement regarding how established a practice is in regard to quality research. We do not make funding decisions.

Description of proposed treatment

Video modeling is described by the GemIIni Systems website as follows: "GemIIni focuses on one concept at a time, utilizing an approach called discrete video modeling to teach language, reading and social skills. Discrete video modeling breaks down information into understandable and digestible bites, making it an ideal solution for young children or people with special needs." The National Professional Development Center on Autism Spectrum Disorders defines video modeling as "A visual model of the targeted behavior or skill (typically in the behavior, communication, play, or social domains), provided via video recording and display equipment to assist learning in or engaging in a desired behavior or skill." The National Standards Report from the National Autism Council defines it as "Video modeling occurs when you pre-record a person demonstrating the target behavior. Video modeling can be a great option for children/adolescents with an affinity for television shows, movies, or interest in seeing themselves on a monitor (i.e., television screen, computer monitor, video recorder monitor)." The GemIIni Systems website specifically promotes Discrete Video Modeling which are shorter video segments used in repeated presentation style and target two specific populations, individuals with Autism and individuals with Down Syndrome.

The GemIIni Systems program is described as follows: "Spokane, Wash.-based GemIIni has been a pioneer in the video modeling arena, creating a system of videos and online software that has been implemented in university and public school settings internationally. Founders Laura and Brian Kasbar draw on personal experience, with three of their seven children on the autism spectrum. The website has

quickly grown to feature more than 12,000 videos accessible with an annual or monthly membership, and scholarships are available so no child is turned away for an inability to pay. 'A child can never have enough in-vivo (face-to-face) therapy,' Brian Kasbar says. 'But we all know the realities: therapy is scarce and it's expensive. We need to make those golden hours of face-to-face therapy as productive and efficient as possible.' The DVM can work best as 'therapy homework,' Brian Kasbar says. Parents like the system because it is a clinician-designed intervention used in addition to the hours of in-person therapy that is completely customized to each child. 'We should let computers do what they do best (repetitive tasks and teaching) and let humans do what they do best—which is to use all of their technical skills to bring out the wonderful, communicative and loving children that are inside each of our kids.'"

Synopsis of review

In the case of GemIIni Systems, please refer to the attached reference listing that details the reviewed research. The committee's conclusions regarding Gemiini Systems include that video modeling as an instructional strategy to teach a wide variety of academic, functional living and social behaviors has a lengthy and successful history in the research literature. Six single-case studies were reviewed, all of which showed success in the use of video modeling to promote a variety of skills across a wide age-range of learners. In addition, two literature review articles (Delano, 2007 and MCoy et al, 2007) are included in the references, also showing support for the use of video modeling as an evidence-based practice. Furthermore, two nationally recognized authoritative bodies, The National Standards Project and the National Professional Development Center, have recognized it as having a strong evidence base. In regard to the GemIIni Systems program specifically, the website provides valid evidence with links to research studies documenting aspects of video instruction (e.g., eye gaze, speed of presentation time, length of video instruction). They also include links to research documenting video modeling, as used in the GemIIni System videos over several decades. The website is easy to navigate and appears to be family friendly and affordable, with scholarships available based on finanacial need.

In sum, it is the decision of the committee that GemIIni Systems is a Level 1 - Well Established/Strong Evidence practice and a Proven & Effective treatment.

## Section Two: Rationale for Focus on Research Specific to Comprehensive Treatment Packages (CTP) or Models

In the professional literature, there are two classifications of interventions for individuals with Autism Spectrum Disorder (National Research Council, 2001; Odom et al., 2003; Rogers & Vismara, 2008):

(a) **Focused intervention techniques** are individual practices or strategies (such as positive reinforcement) designed to produce a specific behavioral or developmental outcome, and

(b) **Comprehensive treatment models** are "packages" or programs that consist of a set of practices or multiple techniques designed to achieve a broader learning or developmental impact.

To determine whether a treatment package is proven and effective, the Treatment Intervention Advisory Committee (TIAC) will adopt the following perspective as recommended by Odom et al. (2010):

The individual, focused intervention techniques that make up a comprehensive treatment model may be evidence-based. The research supporting the effectiveness of separate, individual components, however, does *not* constitute an evaluation of the comprehensive treatment model or "package." The TIAC will consider and review only research that has evaluated the efficacy of implementing the comprehensive treatment *as a package*. Such packages are most often identifiable in the literature by a consistently used name or label.

National Research Council. (2001). *Educating children with autism.* Washington, DC: National Academy Press.

Odom, S. L., Brown, W. H., Frey, T., Karusu, N., Smith-Carter, L., & Strain, P. (2003) Evidence-based practices for young children with autism: Evidence from single-subject research design. *Focus on Autism and Other Developmental Disabilities, 18,* 176-181.

Odom, S. L., Boyd, B. A., Hall, L. J., & Hume, K. (2010). Evaluation of comprehensive treatment models for individuals with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 40,* 425-436.

Rogers, S., & Vismara, L. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37,* 8-38.

## Section Three: DLTC-TIAC Treatment Review Evidence Checklist

Name of Treatment: Gemiini Systems (Video Modeling)

*Level 1- Well Established or Strong Evidence (DHS 107 - Proven & Effective Treatment)*

- ☒ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, National Professional Development Center) have approved of or rated the treatment package as having a strong evidence base; authorities are in agreement about the level of evidence.
- ☒ There exist ample high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - ☒ Minimum of two group studies or five single subject studies or a combination of the two.
  - ☐ Studies were conducted across at least two independent research groups.
  - ☐ Studies were published in peer reviewed journals.
- ☐ There is a published procedures manual for the treatment, or treatment implementation is clearly defined (i.e., replicable) within the studies.
- ☒ Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* The majority of research found is specific to autism, some evidence for other developmental delays such as Down Syndrome (Biderman, 1999) and pervasive developmental delay. Ages in six studies ranged from 5 - 11 and 17-18 years old. Authoritative bodies identify research across all age ranges, with the majority of evidence in younger aged children.

*Level 2 – Established or Moderate Evidence (DHS 107 - Proven & Effective Treatment)*

- ☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have approved of or rated the treatment package as having at least a minimal evidence base; authorities may not be in agreement about the level of evidence.
- ☐ There exist at least two high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - ☐ Minimum of one group study or two single subject studies or a combination of the two.
  - ☐ Studies were conducted by someone other than the creator/provider of the treatment.
  - ☐ Studies were published in peer reviewed journals.
- ☐ Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* At this level, include ages of participants and disabilities identified in body of research

*Level 3 – Emerging Evidence (DHS 107 – Promising as a Proven & Effective Treatment)*

- ☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have recognized the treatment package as having an emerging evidence base; authorities may not be in agreement about the level of evidence.
- ☐ There exists at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - ☐ May be one group study or single subject study.
  - ☐ Study was conducted by someone other than the creator/provider of the treatment.
  - ☐ Study was published in peer reviewed journal.
- ☐ Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* At this level, include ages of participants and disabilities identified in body of research

*Level 4 – Insufficient Evidence (Experimental Treatment)*

- ☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- ☐ There is not at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - ☐ Study was conducted by the creator/provider of the treatment.
  - ☐ Study was not published in a peer reviewed journal.
- ☐ Participants (i.e., N) are not clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:*

*Level 5 – Untested (Experimental Treatment) &/or Potentially Harmful*

☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.

☐ There are no published studies supporting the proposed treatment package.

☐ **There exists evidence that the treatment package is potentially harmful.**

- ☐ Authoritative bodies have expressed concern regarding safety/outcomes.
- ☐ Professional bodies (i.e., organizations or certifying bodies) have created statements regarding safety/outcomes.

*Notes*: At this level, please specify if the treatment is reported to be potentially harmful, providing documentation

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Date: July 31, 2015

Committee Members Completing Initial Review of Research Base: Lana Collet-Klingenberg, Jenny Asmus

Committee Decision on Level of Evidence to Suggest the Proposed Treatment is Proven and Effective: Level 1 - Well Established/Strong Evidence practice and a Proven & Effective treatment.

**References Supporting Identification of Evidence Levels:**

Chambless, D.L., Hollon, S.D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology, 66(1)* 7-18.

Chorpita, B.F. (2003). The frontier of evidence---based practice. In A.E. Kazdin & J.R. Weisz (Eds.). *Evidence-based psychotherapies for children and adolescents* (pp. 42---59). New York: The Guilford Press.

Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure, 54(4),* 275-282.

## Section Four: Literature Review


Biederman, G.B., Stepaniuk S., Davey, V.A., Raven, K. and Ahn, D. (1999). Observational learning in children with Down Syndrome and developmental delays: The effect of presentation speed in videotaped modeling. *Down Syndrome Research and Practice, 6(1),* 12-18.

Charlop-Christy, M.H., Le, L., and Freeman, K.A. A comparison of video modeling with in vivo modeling for teaching children with autism (2000). *Journal of Autism and Developmental Disorders, 30(6),* 537-552.

Delano, M.E. (2007). Video modeling interventions for individuals with autism. *Remedial and Special Education, 28(1),* 33-42.

MacDonald, R., Sacramone, S., Mansfield, R., Wiltz, K., and Ahearn, W. (2009). Using video modeling to teach reciprocal pretend play to children with autism. *Journal of Applied Behavior Analysis, 42,* 43-55.

Maione, L. & Mirenda, P. (2006). Effects of video modeling and video feedback on peer-directed social language skills of a child with autism. *Journal of Positive Behavior Interventions, 8(2),* 106-118.

McCoy, K., and Hermansen, E.(2007). Video modeling for individuals with autism: A review of model types and effects. *Education and Treatment of Children, 30(4),* 183-213.

Morelock. L., Reynolds, J.L., Fisher, S., and Comer, R.J. (2015). Video modeling and word identification in adolescents with Autism Spectrum Disorder. *Child Language Teaching and Therapy, 31(1),* 101-111.

Nikopoulos, C.K., and Keenan, M. (2007). Using video modeling to teach complex social sequences to children with autism. *Journal of Autism and Developmental Disorders, 37,* 678-693.

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|---|---|
| Article Reference: | Biederman, G.B., Stepaniuk S., Davey, V.A., Raven, K. and Ahn, D. (1999). Observational learning in children with Down Syndrome and developmental delays: The effect of presentation speed in videotaped modeling. Down Syndrome Research and Practice, 6(1), 12-18. |
| IV Description | Video modeling of two basic dressing skills |
| DV | Dressing skills |
| # in study | 8 |
| Age ranges | 6 – 10 years |
| Diagnoses | Down Syndrome (3), autism (3), PDD (2) |
| Design | Within subjects design comparing two different presentation speeds of models |
| Study Results | Skills were learned; data support passive versus interactive modeling and slower presentation speed versus faster presentation speed. |
| Reviewer Comments | Nicely designed study with component/speed analysis and use of t-tests |

**Single-Case Design EBP Inclusion Criteria Checklist**

Instructions: Read each item and check the appropriate box. If you check "NO" at any time, the article can be discarded as it will not be included as evidence for a practice.

| Item | YES | NO | Rationale |
|---|---|---|---|
| Does the dependent variable align with the research question or purpose of the study? | X | | |
| Was the dependent variable clearly defined such that another person could identify an occurrence or non-occurrence of the response? | X | | |
| Does the measurement system align with the dependent variable and produce a quantifiable index? | X | | |
| Did a secondary observer collect data on the dependent variable for at least 20% of sessions across conditions? | X | | |
| Was mean interobserver agreement (IOA) 80% or greater OR kappa of .60 or greater? | X | | |
| Is the independent variable described with enough information to allow for a clear understanding about the critical differences between the baseline and intervention conditions, or were references to other material used if description does not allow for a clear understanding? | X | | |
| Was the baseline described in a manner that allows for a clear understanding of the differences between the baseline and intervention conditions? | X | | |
| Are the results displayed in graphical format showing repeated measures for a single case (e.g., behavior, participant, group) across time? | X | | |
| Do the results demonstrate changes in the dependent variable when the independent variable is manipulated by the experimenter at three different points in time or across three phase repetitions?<br>*Alternating treatment designs require at least 4 repetitions of the alternating sequence. | X | | |

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|---|---|
| Article Reference: | Charlop-Christy, M.H., Le, L., and Freeman, K.A. A comparison of video modeling with in vivo modeling for teaching children with autism (2000). Journal of Autism and Developmental Disorders, 30(6), 537-552. |
| IV Description | Video modeling as compared to in-vivo (live) modeling |
| DV | Developmental skills acquisition and generalization. Targets varied across children but included skills such as expressive labeling of emotions, spontaneous greetings, oral comprehension questions, independent play, conversational speech, cooperative play, daily living skills (e.g., tooth brushing), and social play |
| # in study | 5 |
| Age ranges | 7-11 years |
| Diagnoses | autism |
| Design | Multiple baseline across participants and within participants across conditions and tasks. |
| Study Results | Video modeling was more effective than in vivo modeling in terms of quicker skill acquisition and in regard to generalization |
| Reviewer Comments | Researchers also looked at time and cost efficiency of two modeling procedures with conclusion that video modeling was less costly and more time efficient. |

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| Does the measurement system align with the dependent variable and produce a quantifiable index? | X | | |
| Did a secondary observer collect data on the dependent variable for at least 20% of sessions across conditions? | X | | |
| Was mean interobserver agreement (IOA) 80% or greater OR kappa of .60 or greater? | X | | |
| Is the independent variable described with enough information to allow for a clear understanding about the critical differences between the baseline and intervention conditions, or were references to other material used if description does not allow for a clear understanding? | X | | |
| Was the baseline described in a manner that allows for a clear understanding of the differences between the baseline and intervention conditions? | X | | |
| Are the results displayed in graphical format showing repeated measures for a single case (e.g., behavior, participant, group) across time? | X | | |
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| Article Reference: | MacDonald, R., Sacramone, S., Mansfield, R., Wiltz, K., and Ahearn, W. (2009). Using video modeling to teach reciprocal pretend play to children with autism. Journal of Applied Behavior Analysis, 42, 43-55. |
| IV Description | Video modeling of scripted play scenarios (typical peers were also coached) |
| DV | Scripted verbalizations, play actions, unscripted verbalizations, reciprocal verbal interactions and cooperative play |
| # in study | 4 (two pairs of one typically developing child and one child with autism) |
| Age ranges | 5 – 7 years old |
| Diagnoses | Autism |
| Design | Multiple probe design across play sets (i.e., airport, zoo, grill) |
| Study Results | Video modeling was successful in teaching sequences of cooperative play |
| Reviewer Comments | Adults in play settings could have been unintended stimulus; no novel play; no measures of generalizaiton |

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| Is the independent variable described with enough information to allow for a clear understanding about the critical differences between the baseline and intervention conditions, or were references to other material used if description does not allow for a clear understanding? | X | | |
| Was the baseline described in a manner that allows for a clear understanding of the differences between the baseline and intervention conditions? | X | | |
| Are the results displayed in graphical format showing repeated measures for a single case (e.g., behavior, participant, group) across time? | X | | |
| Do the results demonstrate changes in the dependent variable when the independent variable is manipulated by the experimenter at three different points in time or across three phase repetitions?<br>*Alternating treatment designs require at least 4 repetitions of the alternating sequence. | X | | |

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|---|---|
| Article Reference: | Morelock. L., Reynolds, J.L., Fisher, S., and Comer, R.J. (2015). Video modeling and word identification in adolescents with Autism Spectrum Disorder. Child Language Teaching and Therapy, 31(1), 101-111. |
| IV Description | Gemiini videos related to individual learners target skills |
| DV | Word recognition and pronunciation (for one participant, also definitions of words) |
| # in study | 3 |
| Age ranges | 17-18 years old |
| Diagnoses | ASD |
| Design | Multiple baseline design across participants |
| Study Results | Video modeling was successful in teaching word recognition and pronunciation (one student had limited success with pronunciation) |
| Reviewer Comments | Researchers assessed social validity of use of video modeling with teachers; also with students following intervention. |

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| | |
|---|---|
| Article Reference: | Nikopoulos, C.K., and Keenan, M. (2007). Using video modeling to teach complex social sequences to children with autism. Journal of Autism and Developmental Disorders, 37, 678-693. |
| IV Description | Video modeling including 20 – 37 second video clips, stimulus materials (either a ball, a table and two rags or a plant, a vacuum cleaner and a jacket), and an available person to interact with |
| DV | Five behaviors including social initiation, reciprocal play, imitative response, object engagement and other (unrelated behaviors) |
| # in study | 3 |
| Age ranges | 6.5 – 7 years old |
| Diagnoses | autism |
| Design | Multiple baseline across participants |
| Study Results | Short sequences of video modeling resulted in increased pro-social behavior, and decreased other (concurrent, non-desirable) behavior. Follow up probes showed maintenance of learned behaviors. |
| Reviewer Comments | One and two month follow up probes were conducted with good results; an additional participant was added later with an AB design showing similar positive outcomes. Researchers also looked at social validity by mothers of typically developing children who confirmed that behaviors taught were indeed typical. |

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| Does the dependent variable align with the research question or purpose of the study? | X | | |
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| Was the baseline described in a manner that allows for a clear understanding of the differences between the baseline and intervention conditions? | X | | |
| Are the results displayed in graphical format showing repeated measures for a single case (e.g., behavior, participant, group) across time? | X | | |
| Do the results demonstrate changes in the dependent variable when the independent variable is manipulated by the experimenter at three different points in time or across three phase repetitions?<br>*Alternating treatment designs require at least 4 repetitions of the alternating sequence. | X | | |