REL Appalachia Ask A REL Response

Educator Effectiveness
November 2018

Question:

How does clustered grouping impact gifted and non-gifted student outcomes?

Response:

Thank you for your request to our REL Reference Desk regarding evidence-based information on clustered grouping. Ask A REL is a collaborative reference desk service provided by the 10 Regional Educational Laboratories (RELs) that, by design, functions much in the same way as a technical reference library. Ask A REL provides references, referrals, and brief responses in the form of citations in response to questions about available education research.

Following an established REL Appalachia research protocol, we searched for peer-reviewed articles and other research reports on schoolwide clustered grouping. We focused on identifying resources that specifically addressed the impact of clustered grouping on outcomes for gifted and non-gifted students. The sources included ERIC and other federally funded databases and organizations, research institutions, academic research databases, and general Internet search engines. For more details, please see the methods section at the end of this document.

The research team did not evaluate the quality of the resources provided in this response; we offer them only for your reference. Also, the search included the most commonly used research databases and search engines to produce the references presented here, but the references are not necessarily comprehensive, and other relevant references and resources may exist. References are listed in alphabetical order, not necessarily in order of relevance.

References

Brulles, D., Peters, S. J., & Saunders, R. (2012). Schoolwide mathematics achievement within the gifted cluster grouping model. *Journal of Advanced Academics, 23*(3), 200–216. Abstract retrieved from https://eric.ed.gov/?id=EJ974003

From the abstract: "An increasing number of schools are implementing gifted cluster grouping models as a cost-effective way to provide gifted services. This study is an example of comparative action research in the form of a quantitative case study that focused on mathematic achievement for nongifted students in a district that incorporated a schoolwide

cluster grouping model. Although previous research found that gifted students performed better in the cluster setting, this study sought to determine the effects of the cluster model on nongifted students. Findings from this research indicate that general education students in the gifted cluster classes and those not in the gifted clusters experienced similar levels of academic growth in mathematics. Data disaggregated according to grade level, gender, ethnicity, and English language learner status showed that students achieved at similar rates in mathematics in gifted cluster classrooms and those classrooms without the gifted cluster groups."

Brulles, D., Saunders, R., & Cohn, S. J. (2010). Improving performance for gifted students in a cluster grouping model. *Journal for the Education of the Gifted, 34*(2), 327–350. Retrieved from https://eric.ed.gov/?id=EJ910197

From the abstract: "Although experts in gifted education widely promote cluster grouping gifted students, little empirical evidence is available to attest to its effectiveness. This study is an example of comparative action research in the form of a quantitative case study that focused on the mandated cluster grouping practices for gifted students in an urban elementary school district. Some school administrators chose not to follow the model as designed, resulting in the emergence of two groups: gifted students in cluster-grouped classrooms and those in regular heterogeneous classrooms. This action research project analyzed achievement in mathematics for subgroups that included gender, grade levels, ethnicity, and English language learner status. Results indicate that the gifted students in gifted cluster classes demonstrated statistically significant and scientifically meaningful achievement growth, regardless of their demographic group."

Gentry, M. L. (1999). *Promoting student achievement and exemplary classroom practices through cluster grouping: A research-based alternative to heterogeneous elementary classrooms.* Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut. Retrieved from https://eric.ed.gov/?id=ED429389

From the abstract: "In this monograph, a causal-comparative, longitudinal study of cluster grouping at the elementary level is described and recommendations are made based on the findings. This study employed both quantitative and qualitative methodologies. The primary purpose of the study was to examine the effects of an existing cluster grouping program on the achievement and identification of students who participated in the program from third through fifth grade and to compare achievement with similar students who were not involved in a cluster grouping program. Descriptive and inferential statistics were used to address these areas. A secondary purpose of this study was to investigate the practices of the teachers who taught in the school using cluster grouping to help provide insight into their classrooms and the school, which was done using qualitative follow-up methods. Results included more students being identified as high achieving during the three program years, achievement scores increasing within the school using cluster grouping, and a significant interaction between the treatment and comparison school in favor of the treatment school. Additionally, qualitative findings indicated that teachers used flexible

grouping, gifted education strategies, had high yet realistic expectations of their students, and were involved in gifted professional development."

Matthews, M. S., Ritchotte, J. A., & McBee, M. T. (2013). Effects of schoolwide cluster grouping and within-class ability grouping on elementary school students' academic achievement growth. *High Ability Studies, 24*(2), 81–97. Abstract retrieved from https://eric.ed.gov/?id=EJ1020880

From the abstract: "We evaluated the effects of one year of schoolwide cluster grouping on the academic achievement growth of gifted and non-identified elementary students using a piecewise multilevel growth model. Scores from 186 non-identified and 68 gifted students' Measures of Academic Progress Reading and Math scores were examined over three school years. In 2008–2009 within-class ability grouping was used. In 2009–2010 schoolwide cluster grouping was implemented. In 2010–2011 students once again were grouped only within classrooms by ability and students identified as gifted were spread across all classrooms at each grade level. Results suggest that schoolwide cluster grouping influenced student performance in the year following its implementation, but only for mathematics and not the area of reading."

Pierce, R. L., Cassady, J. C., Adams, C. M., Neumeister, K. L. S., Dixon, F. A., & Cross, T. L. (2011). The effects of clustering and curriculum on the development of gifted learners' math achievement. *Journal for the Education of the Gifted, 34*(4), 569–594. Abstract retrieved from https://eric.ed.gov/?id=EJ932193; full text available at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1015.389&rep=rep1&type=pdf

From the abstract: "There is a paucity of empirical studies dealing with benefits of gifted programming in mathematics for elementary students. The current study reports on the impact of using cluster grouping and specific curriculum to support gifted learners' math achievement in urban elementary schools. Although the results of Year 3 provide the most compelling evidence of success, Year 1 results are included to explain the route taken to achieve those results. The results demonstrated that teachers in a large urban school district can promote academic gains over time for gifted and comparison students provided the curriculum is designed to support learning at varied ability levels, that teachers have sufficient experience with the content to deliver the planned materials appropriately, and that the context of the classroom setting supports collaborative learning and embraces challenge for all learners."

Additional Ask A REL Responses to Consult

Ask A REL Appalachia at SRI International. (2017). *What is the impact of tracking in mathematics in grades 5–8 on students' mathematics achievement and future mathematics pathways?* Retrieved from https://ies.ed.gov/ncee/edlabs/regions/appalachia/askarel/aar19.asp

Additional Organizations to Consult

National Association for Gifted Children: https://nagc.org/

*From the website: "*NAGC's mission is to support those who enhance the growth and development of gifted and talented children through education, advocacy, community building, and research. We aim to help parents and families, K–12 education professionals including support service personnel, and members of the research and higher education community who work to help gifted and talented children as they strive to achieve their personal best and contribute to their communities."

NAGC resources on grouping: https://www.nagc.org/resources-publications/gifted-education-practices/grouping

National Center for Research on Gifted Education: https://ncrge.uconn.edu/

From the website: "Recent studies of gifted and talented programs indicate that the extent and quality of services available to gifted students varies from state to state, district to district, and even from school to school within school districts. Overall, the field knows little about how gifted and talented programs are implemented in schools, how long students participate and at what level of intensity, and whether these programs are effective in improving students' academic outcomes. In addition, students of particular racial and ethnic backgrounds (i.e., African American, Hispanic or Latino, and Native American), students from lower income families, and students from small-town or rural communities are disproportionally underrepresented in gifted and talented programs. These students are less likely to be identified as gifted and talented in early elementary school, and those who are identified are less likely to have access to or persist in programs or activities for gifted and talented students as they progress through the K–12 system.

With funding authorized through the Jacob K. Javits Gifted and Talented Students Education Act, the Institute of Education Sciences, U.S. Department of Education (PR/Award #R305C140018) launched the National Center for Research on Gifted Education at the University of Connecticut to address these issues."

The National Research Center on the Gifted and Talented (NRC/GT): https://nrcgt.uconn.edu/

From the website: "The National Research Center on Gifted and Talented (NRC/GT) successfully competed for a series of federally funded grants (1990–2013) under the Jacob K. Javits Gifted and Talented Education Act. Our final studies focused on What Works in Gifted Education with the mathematics study at the University of Connecticut and the reading/language arts study at the University of Virginia. The respective research teams developed model-based curricula in mathematics for grade 3 students in general education classrooms and reading/language arts curricula for grade 3 students in gifted and talented programs reflecting the following curricular/instructional models: (a) Differentiation of Instruction Model (Carol Ann Tomlinson); (b) Depth and Complexity Model (Sandra N. Kaplan), and (c) Schoolwide Enrichment Model (Joseph S. Renzulli and Sally M. Reis). Multiple cohorts of students and their teachers participated in the two curricular studies

and initial quantitative and qualitative results were shared with study participants and conference participants.

We completed three additional projects: (a) explored the theory of the malleability of intelligence related to research by Dr. Carol Dweck, Stanford University, and others; (b) summarized the curricular and instructional practices in STEM high schools; and (c) analyzed the status of gifted education programming and services across the nation."

Cluster grouping fact sheet: How to provide full-time services for gifted students on existing budgets: https://nrcgt.uconn.edu/newsletters/fall926/

Methods

Keywords and Search Strings

The following keywords and search strings were used to search the reference databases and other sources:

- (cluster* OR "cluster* group*" OR "cluster* group* model") AND (gifted or "gifted education") AND ("student outcome*" OR "student achievement" OR "student performance")

Databases and Resources

We searched ERIC, a free online library of more than 1.6 million citations of education research sponsored by the Institute of Education Sciences (IES), for relevant resources. Additionally, we searched the academic database ProQuest, Google Scholar, and the commercial search engine Google.

Reference Search and Selection Criteria

In reviewing resources, Reference Desk researchers consider—among other things—these four factors:

- Date of the publication: Searches cover information available within the last ten years, except in the case of nationally known seminal resources.
- Reference sources: IES, nationally funded, and certain other vetted sources known for strict attention to research protocols receive highest priority. Applicable resources must be publicly available online and in English.
- Methodology: The following methodological priorities/considerations guide the review and selection of the references: (a) study types—randomized controlled trials, quasi experiments, surveys, descriptive data analyses, literature reviews, policy briefs, etc., generally in this order; (b) target population, samples (representativeness of the target population, sample size, volunteered or randomly selected), study duration, etc.; (c) limitations, generalizability of the findings and conclusions, etc.
- Existing knowledge base: Vetted resources (e.g., peer-reviewed research journals) are the primary focus, but the research base is occasionally slim or nonexistent. In those

cases, the best resources available may include, for example, reports, white papers, guides, reviews in non-peer-reviewed journals, newspaper articles, interviews with content specialists, and organization websites.

Resources included in this document were last accessed on November 18, 2018. URLs, descriptions, and content included here were current at that time.

This memorandum is one in a series of quick-turnaround responses to specific questions posed by education stakeholders in the Appalachia region (Kentucky, Tennessee, Virginia, and West Virginia), which is served by the Regional Educational Laboratory Appalachia (REL AP) at SRI International. This Ask A REL response was developed by REL AP under Contract ED-IES-17-C-0004 from the U.S. Department of Education, Institute of Education Sciences, administered by SRI International. The content does not necessarily reflect the views or policies of IES or the U.S. Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.