Buffalo Public Schools

Putting children and families first to ensure high academic achievement for all

INFORMATION CAPSULE

Research Services

Vol. 13
April, 2018

Ruzanna Topchyan, Ph.D.

ABILITY VS. MIXED-ABILITY GROUPING

AT A GLANCE

Ability grouping has been practiced for years to provide higher achievers or gifted and talented students an opportunity to engage into education with alike peers with the hope that this type of grouping will allow them to perform to their actual potential. However, educational researchers seem to have different opinions about ability grouping. The purpose of this capsule is to present some of those opinions, together with sample empirical studies conducted on ability vs. mixed ability grouping.

Introduction

Educators seem to be divided on their perceptions about the benefits of ability grouping. Some feel that ability grouping has beneficial influence on children's academic and behavioral outcomes, but some others raise questions that are supportive of mixed-ability grouping in K-12 classrooms. While ability grouping and placing students in selective schools seems to have evident benefit of allowing students to study with their peers who are at the same or similar level of academic development, selective schools have also been criticized for creating disadvantages for high and low achievers.

For instance, selective schools have been criticized in Australia on the grounds that education on one hand emphasizes equity and access and on the other hand offers selective schools as fightback of public education. Selective schools are viewed to seen to further segregate students by being not open to everyone. On top of that, they do not seem to select teachers based on merit, and do not seem to use educational research appropriately to make sure that the educational needs of all students are being met appropriately. Children are found to learn better in diverse environments, both academically and socially and low-ability students become double disadvantaged due to their placement near impossible mobility resulting from that. While these schools are doomed to benefit high-achievers, they hurt them as well

because students miss out on the benefits of mixed ability classrooms and can develop negative perceptions of students not deemed as smart as them. With all the above stated, it seems that those schools do not serve for the good of the society as a whole (Jacobs, 2018).

Further, the proponents of mixed-ability classroom (MAC) prescribe the following positive characteristics to MAC which naturally seem to be the limitations of ability grouping:

(i) In MAC, students are not labelled and they are offered educational justice. MAC allows providing equal learning opportunity to all students and can improve their motivation and self-evaluation and avoid a sense of failure (Hallam & Ireson, 2005),

(ii) MAC allows to foster personal and social development of students (Tomlinson, 2001). It gives students security, confidence and sense of individual responsibility and benefits the society by providing support to humanism at the same time developing a person totally and not only the student's cognitive skills (Williams and Burden, 1997),

(iii) MAC caters to different needs effectively (Boaler, 2008) and supports the ideas of Multiple Intelligences theory (Ireson, Hallam & Hurley, 2005)

(iv) MAC creates better classroom environment for learners in that it can provide happy atmosphere as it provides feeling of security, prevents students from being prejudged, and respects those with different talents, achievement and backgrounds (Tomlinson, 2001).

Effect of MAC on Student Achievement

Several studies have been conducted on ability and mixed ability classrooms. Among the topics explored, two are of central interest in this research capsule: (i) the effect of MAC on student achievement, and (ii) teachers' perceptions on using MAC. Sample studies are reported below.

Burke and Sass (2013) conducted a study to test the effect of classroom peers on math and reading achievement in educational context with public school grade 3 to 10 students in the state of Florida over the period 1999/00–2003/04. The study simultaneously controlled for the fixed inputs of students, teachers, and schools in measuring peer influences on academic achievement. The study suggested that there is significant peer effects only at the classroom level, and not at the general grade level, a result that emphasizes the importance of identifying the salient peer group. It was suggested that peer effects are not "one-size –fits-all", but rather exhibit striking differences across students of different abilities and across different segments of the peer ability distribution. It was identified that low-ability students appeared to benefit significantly from having top-quality peers, but high-ability peers seemed to experience reductions in achievement gains from mixing with students of very low ability, and these reductions may fully offset the weaker students' gains.

Rieger (2007) conducted a study to compare 704 Grade 4 students' mathematics achievement in ability grouping vs. mixed-ability (high, medium, and low ability) classrooms for three years. The results of the study suggested that in homogeneous ability grouping there was a significant mean growth on standardized test scores in all three ability groups (low, medium and high). In heterogeneous classrooms, there was minimal growth for low ability students, whereas high and medium ability students showed negative mean growth all three years of the study.

Fitzgerald (2013) conducted a study to explore whether students who had participated in a High Ability Learning Program performed at higher levels on a variety of achievement tests and overall grade point averages in the 12th grade than students who did not participate in the High Ability Learning Program. The

data analyzed for this study included NeSA Reading, Math and Science scores, ACT scores, and overall grade point averages, advanced placement grade point averages, and advanced placement participation frequencies. All participants in this study had ability scores within the range between 109 and 121. The results of the study indicated that there is no difference in the achievement of the students in daily academic performance as measured by grade point averages and advanced placement participation and achievement. There is, however, a significant difference between students' performance on standardized tests. Overall, students who were selected for the High Ability Learning Program performed at a higher level than students who were not selected for the program. This raises questions of the reason behind the difference in achievement. It also calls for an examination of the types of programming that are offered to High Ability students.

Park and Lee (2015) conducted an experimental study among 5-year-old children to explore the effects of group dyadic collaboration vs. working individually in a group in three types of collaborative dyads (e.g. intellectually high –socially high, intellectually high –socially low). Children's performance on the classification and perspective-taking tasks was assessed. The results of the study suggested that children with high ability and those with low ability in collaborative dyads had higher learning gains than singletons. This finding supports the benefits of collaborative learning for experts as well as novices and the effectiveness of mixed-ability groupings for young children's learning. Second, the researchers observed that low-ability children were working with socially advanced students, even students with low cognitive ability, showed significantly greater improvement in the perspective-taking task than those working with a cognitively advanced but socially less skilled peer.

Teacher Perceptions on Teaching in Mixed Ability Classrooms (MAC).

Teacher perceptions on teaching in mixed ability classrooms were also explored. Bremner (2008) made a very important statement about the mixed ability classrooms that reads in the following way: "A mixed ability class does not just consist of a range of abilities but a range of learning styles and preferences. All pupils will show strengths at different times depending on the topic being studied and the learning style being used…" Further, the researcher noted that all the classrooms in general "mixed ability to certain degree" (pp. 1-2). For this reason, it is paramount for educators to better understand how the needs of all learners could be catered in mixed-ability classrooms. For instance, Rao (2016) opined that since mixed ability classrooms house students with multiple intelligences, teachers need to be creative and find different ways to enhance these intelligences, by recognizing the students' potentials in a mixed ability classroom and designing instructional materials to suit the students' needs. However, teachers' perceptions on this type of instruction is very importance and has been explored. Sample studies are presented below.

Huang (2014) conducted a study to explore 80 Taiwanese English teachers' attitudes towards mixed ability teaching and mixed ability class in primary schools. Teachers responded to a questionnaire. The findings of the study suggested that the majority of the participants agree that the mixed-ability approach can help students fit into society; however, over one third of the teachers did not agree that students can learn effectively in MAT and over half claimed that they had difficulties catering for different individuals, especially the ablest and weakest students. Furthermore, they stated that the class size, learning hours, equipment and other additional factors caused difficulties for mixed ability teaching.

O'Rourke (2013) conducted a case study to determine the effectiveness of mixed ability classes from the perspective of the teachers. The results of the study suggested that although all students benefited socially from heterogeneous classes, students gained little academically. Teachers felt unable to provide appropriate instruction to meet all their students' needs and had difficulty assessing student progress.

Pedersen and Kronborg (2014) conducted a collective case study to explore the thoughts and actions of six health educators teaching in a secondary school. Teachers were given the opportunity to express ideas and opinions about teaching highly able students in their mixed-ability health classes in two semi-structured interviews, which were conducted pre and post professional learning. Additionally, each teacher was observed educating one mixed-ability health class. Findings suggested that various factors influenced teacher response in meeting the learning needs of highly able students in mixed-ability health classes. These included existing teacher beliefs about teaching and learning, teacher receptiveness to professional learning, and the role of the school context in creating an environment whereby teachers feel able to develop and implement appropriate pedagogies for highly able learners.

Researchers also relate the effectiveness of teaching in mixed-ability classrooms to teachers' ability to use differentiated instruction. Brentnall (2016) conducted a study to explore teacher perceptions of professional development for providing differential instruction. The results of the study revealed the following: (i) professional development has overall positive impact on teachers' ability to differentiate instruction, (ii) teachers vary on their core belief that all students are capable of learning within a mixed ability setting, (iii) although differentiated instruction is seen as a necessary instructional strategy, it is difficult to implement. However, some challenges with offering differentiated instruction were also discovered. For instance in a study conducted by Aftab (2015) with 120 middle school teachers on their beliefs and perceptions regarding implementing differentiated instructions if was found that while there is a positive association between teachers' beliefs about their intentions and stakeholders' expectations to implement differentiated instruction, teachers were found to be short of planning and instructional time for differentiation.

Danzi, Reul and Smith (2008) conducted an action research with 72 students to explore the methods used to reduce boredom and frustration and increase academic motivation in three mixed-ability classrooms (Grade 3, 5 and 8). Several behaviors were observed that highlighted boredom, frustration, and motivation, such as talking during instructional and work time, rushing through assigned tasks, inability to self-select free-time activities, working slowly, and lacking enthusiasm toward tasks. Over half of the students conveyed feelings of boredom while in the classroom. The majority of the students also stated that they were always or sometimes distracted during work time. Other results included some students being excited, while a minority felt their work was never challenging. Based on the analysis of the date, the researchers identified that the majority of incidences were those of talking during instructional and work time, and students' inability to self-select free-time activities. The teacher researchers chose three specific differentiated instruction strategies as the intervention to be implemented. Free-time activities encompassed different content areas and appealed to the students' multiple intelligences. Students were allowed to choose an activity to occupy any free-time they had in the classroom. Tiered assignments allowed the same objective to be obtained at various levels and modalities. Assignments were created that appealed to the multiple intelligences ranging from simple to complex. Each student chose the assignment that best suited his or her needs. Authentic assessments were culminating activities and tests that targeted learning styles, multiple intelligences, and ability levels. Even though authentic assessments provided many options, a uniform objective was still being tested. At the conclusion of the project, the data analysis suggested that overall the number of off-task behaviors decreased.

O'Leary (2011) conducted a study to compare the effects of using commercially-available worksheets with universally-designed worksheets on student engagement and on-task behavior within two mixed-ability science classes in an urban community school. The universally-designed worksheets began with questions that were carefully matched with students who traditionally struggled with independent worksheet completion. In an effort to challenge all students, subsequent questions on the universally-designed worksheets required increasing levels of literacy in a graded fashion. The results of the study suggested that the use of universally-designed worksheets can improve student engagement and on-task behavior during independent timed worksheet activities within mixed-ability science classrooms.

Ktistis (2014) stated that although critical thinking (CT) is a goal of education in several countries all over the world, many students, including gifted students, lack critical thinking skills and that gifted students' superior innate abilities cannot guarantee that they will be good critical thinkers without being taught how to think critically. The researcher conducted a qualitative phenomenological study was to explore the lived experiences of teachers of mixed-ability classrooms in teaching CT to gifted students. The participants in the study were nine sixth grade general education teachers of Nicosia, who articulated their perceptions regarding differences in CT between gifted and regular students, and practices that promote CT in gifted students taught in the mixed-ability classroom. The analysis revealed that: gifted students were superior from regular students in CT cognitive skills; teachers' role in fostering CT in the mixed-ability classroom was critical; transfer of CT across disciplines was feasible for gifted students; the relation of CT to thinking skills was unclear; teachers, although aware of the basic concepts of CT and differentiation, in practice did not systematically apply differentiation or provide for fostering CT to their gifted students; teachers were unaware of basic CT strategies and activities reported in the literature to develop CT; and teachers desired renewal in gifted education and CT strategies as well as in differentiation and CT in general.

CONCLUSION

As the discussion above suggests, educators understand the benefits and limitations of ability grouping and have been exploring the possibilities for teaching students in mixed-ability classrooms. While previous research suggests that students of different abilities can benefit from being taught together, the role of the teacher and designed instruction is central for helping students succeed. Differentiated instruction seems to be seen as one of the instructional strategies that can help cater students' different learning needs. However, teachers seem to need some help to successfully design and implement differentiated instruction in their mixed-ability classrooms.

References

Aftab, J. (2016). Teachers' beliefs about differentiated instructions in mixed ability classrooms: A case of time limitation. *Journal of Education and Educational Development*, *2*(2), 94-114.

Boaler, J. (2008). Promoting 'relational equity' and high mathematics achievement through an innovative mixed-ability approach. British Educational Research Journal, 34(2), 167-194.

Bremner, S.(2008). Some thoughts on Teaching a Mixed Ability Class. *Scottish Language Review*. 18(pp 1-10)

Brentnall, K. (2016). *Believing everyone can learn: Differentiating instruction in mixed ability classrooms* (Doctoral dissertation, College of Saint Elizabeth).

Burke, M. A., & Sass, T. R. (2013). Classroom peer effects and student achievement. *Journal of Labor Economics*, *31*(1), 51-82.

Danzi, J., Reul, K., & Smith, R. (2008). Improving Student Motivation in Mixed Ability Classrooms Using Differentiated Instruction. *Online Submission*.

Fitzgerald, E. A. (2013). *Evaluating the achievement of students who did or did not participate in a high ability learning program*. University of Nebraska at Omaha.

Hallam, S., & Ireson, J. (2005). Secondary School Teachers' pedagogic practices when teaching mixed and structured ability classes. *Research Papers in Education*, *20*(1), 3-24.

Huang, L. Y. (2014). Investigating Mixed-Ability Teaching in Taiwanese Primary Schools. *International Education Studies*, *7*(5), 85.

Ireson, J., Hallam, S., & Hurley, C. (2005). What are the effects of ability grouping on GCSE attainment? *British educational research journal*, *31*(4), 443-458.

Jacobs (2018). End the Selective School Obsession. Sydney Morning Herald; Sydney, N.S.W., January 23, 2018

Ktistis, S. (2014). *Fostering Critical Thinking in Gifted Students in the Heterogeneous Classroom: General Educators' Perceptions*. Northcentral University.

O'Leary, S. (2011). The inclusive classroom: Effect of a readability intervention on student engagement and on-task behaviour within two mixed-ability science classrooms. *Science Education International*, *22*(2), 145-151.

O'Rourke, N. C. (2013). *Teacher Perceptions of Heterogeneous Ability Grouping in Secondary Classes* (Doctoral dissertation, Walden University).

Park, J., & Lee, J. (2015). Dyadic collaboration among preschool-age children and the benefits of working with a more socially advanced peer. *Early Education and Development*, *26*(4), 574-593.

Pedersen, F., & Kronborg, L. (2014). Challenging secondary teachers to examine beliefs and pedagogy when teaching highly able students in mixed-ability health education classes. Australasian Journal of Gifted Education, 23(1), 15.

Rao, Sh. (2016). A Holistic Approach to Teaching in a Mixed Ability Classroom, *Language in India*, *16*(4)

Rieger, K. A. (2014). The effects of ability grouping versus mixed ability grouping on fourth grade mathematics achievement.

Tomlinson, C. A. (2001). *How to Differentiate Instruction in Mixed-Ability Classrooms*. Alexandria, Virginia: Association for Supervision and Curriculum Development (ASCD).

Williams, M., & Burden, R. L. (1997). *Psychology for Language Teachers: A Social Constructivist Approach*. Cambridge: Cambridge University Press.