Analyze of Tracking Students into Different Classes Based on Grades and Its Alternatives

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Abstract: Since tracking students into different classes based on grades is a popular teaching method in high schools in the United States, this paper analyzes and critiques it in light of learning theories like behaviorism and cognitivism. It is discovered that tracking is still problematic according to various learning theories, even though this system of education is relatively common. This paper then examines the effectiveness of Competency-based education and peer assessment as potential alternatives to track. The implementability of these three models in Chinese institutions is also briefly discussed in this work. This study offers a deeper understanding of tracking as well as ideas on how to use the tracking technique and potential substitutes to enhance the effectiveness and results of students' learning.

Keywords: tracking, learning theories, alternatives, competency-based education, peer assessment

1. Introduction

In American schools, the method of assigning students to classes according to their estimated academic abilities is referred to as tracking [1,2]. Students in most high schools in the United States have often been put in advanced, honors, or normal courses in recent years. In addition to tracking students in Mathematics and English subjects, many schools also track them in social studies, science, language, and other subjects [1]. Students might be required to take examinations to demonstrate their academic capacity. Then the school would place them in a more appropriate level of the course. For instance, a junior student with strong mathematics skills could enroll in the advanced Mathematics course with seniors. Although tracking children into different classes based on grades may differ in diverse schools, some universals apply to all settings.

Generally, tracking is based on a set of shared assumptions about how this model impacts students' learning performance and behavior. These presumptions derive from behaviorist learning theory, which hypothesizes that the arranging of reinforcement contingencies in behaviorism motivates people [3]. Especially, rewarding a behavior encourages students to continue doing it by motivating them intrinsically with intrinsic rewards [4]. In this case study, the assumption is that one goal is adapting the curriculum to the unique interests of each student [4]. Many educators attribute to this assumption about how youth are more able to engage in conscious nurturing of their intrinsic motivation [5], and intrinsic motivation leads to a rise in interest and pleasure in work-related activities [6].

When contemplating tracking as a practice in the educational setting, educators should examine the underlying assumptions about learning, the available alternatives, and the efficacy of various approaches suggested by research. This study provides instructors with this crucial information. The author will first describe how tracking methods in American high schools are based on behaviorist views of how people learn. Then, various theoretical presumptions would be adopted to disclose whether tracking could impact students' learning performance and behavior appropriately in institutions. In particular, the study would focus on how cognitivist and socialistic perspectives could be applied to any investigation of the value of tracking. Finally, the author would focus on the implementation ability of the tracking system and its alternatives in Chinese education, and the significance of understanding the basic assumptions about learning by educators.

2.　Theoretical Framework

Tracking students into different classes based on grades offers the opportunity to enroll in courses that are suitable to their abilities and interests. This practice is based on specific behaviorist presumptions about how intrinsic rewards might shape students. According to this viewpoint, learning is a process that keeps students engaged through intrinsic motivation [4]. This might be related to what Skinner claims "positive reinforcement", shaping someone's behavior by rewarding them to reinforce the behavior would occur again in the future [3]. The term "positive reinforcement" has specific meanings in behaviorism. Whereas negative reinforcement eliminates an unfavorable stimulus, positive reinforcement adds a desired stimulus to the circumstance. For instance, children would complete their schoolwork in time to avoid their parents' nagging could be referred to as negative reinforcement, and students might give themselves a candy after receiving a high score could be seen as positive reinforcement. Positive reinforcement's impact on motivation is one factor in its appeal as a teaching strategy since it may provide people a boost in motivation to accomplish goals.

This perspective suggests that tracking may have the power to shape students' behavior. Tracking students into different classes based on grades may be effective if they have strong intrinsic motivation or are sincerely interested in specific subjects since it offers positive reinforcement to boost students to learn more challenging knowledge and strive for higher scores. However, this would be applicable if the pupils themselves are intrinsically motivated and value the incentives given to them. Tracking may have the opposite of its desired impact if the student does not care that much about the grade or views tracking as a violation of their dignity. Moreover, students are treated as blank papers whose behavior could be shaped by the teachers in a behavioristic view, which means that how learners view themself and their interactions with other learners are not as important as they might otherwise be. From this perspective, the content is the main focus compared to the learners or the learners' social contexts. Therefore, tracking may have unforeseen repercussions even from a behaviorist perspective, even though a behaviorist viewpoint first appears to justify the use of tracking as a teaching strategy.

The practice of tracking students into different classes based on grades is also questionable when viewed from different theoretical perspectives on learning. For instance, the negative effects of tracking would also be apparent if one adopts a cognitivist rather than a behaviorist perspective on learning. According to cognitivism, the learner's self-perceptions play a significant role in the learning process. The concept of mind has never vanished in either social or clinical psychology. The cognitive approaches are used to create cognitive progress, while the metacognitive approaches are used to monitor it [7,8]. According to Gold, cognitive engagement is compared to students' psychological investment in their education, such as going above and beyond to select cognitively demanding tasks and making an attempt to completely comprehend the material [9]. In this case, if the student displays a weaker level of self-control or self-efficacy, and is afraid of taking challenges, then the tracking might become a burden to them and weaken their academic performance. Moreover,

tracking students often have an adverse effect on the learners' sense of who they are as individuals because this cognitive orientation alters how students learn as they start to perceive themselves as high-track or low-track learners instead of focusing on their own process of learning and gaining knowledge.

3. Research Question

Curriculum tracking, also referred to as grouping children into classes according to their perceived academic ability, such as test results or prior accomplishments, is a prevalent educational technique in the United States [10]. Despite being widespread, the practice raises theoretical concerns, and it is important to consider if it is appropriate for both American and Chinese institutions. There are concerns regarding whether tracking students promote learning when considered through the prism of contemporary sociocultural and cognitivist theories of learning. The social-cognitive model explains how curricular tracking causes systemic inequalities in children's social-cognitive development, influencing academic and behavioral performance explicitly and implicitly through student and instructor interactions, ultimately establishing educational inequities [10]. The continuance of tracking may be attributed to educators' lack of information about other teaching methods. This research paper addresses the following question to provide educators with access to studies in this field:

What alternatives to tracking based on grades have been explored in educational research and how might these alternatives be applied to the Chinese educational system?

Some current studies on two potential tracking alternatives that have been explored would be addressed in the following pages. This paper will examine each alternative and explain what it comprises, how it aligns with learning theories, and how research has demonstrated its efficacy. Finally, the value of this study for the educational policy as well as the practice among educators would be discussed as a conclusion.

4. Findings

The author will discuss two possible tracking replacements in this part, including competency-based grading, and peer assessment. The history, distinctions, and effectiveness of each alternative will be discussed.

4.1. Competency-based Education

Several definitions and interpretations of competency-based education have been used in various academic programs, and the universal definition of competency-based education (CBE) be developed as the increasing emphasis on outcome-based education, which examples learning that is problem-based, mastery-based, outcome-based, and performance-based [11]. Moreover, Gervais claims that the theoretical underpinnings of CBE are rooted in a variety of learning theories, including behaviorist, functionalist, and humanistic ones [11]. Although CBE is a comparatively recent learning alternative for learners in tertiary education, archives in higher education show that CBE was initially applied to the Morrill Land Acts of 1862, a program that centered on learning outcomes and the ability of students to apply what they had learned to practical cases. [11,12].

According to Mkonongwa, it is achievable to engage in competency-based education using a variety of instructional strategies [13]. Since social constructivism is one of the foundations of competency-based education, thus instead of receiving the knowledge that a teacher would attempt to impart to them in a conventional manner, youngsters could create their own knowledge by connecting with their surroundings [13]. For instance, the teacher may encourage students to work in groups to complete projects using their own research, knowledge, and experience. Students would

then present their projects to the class as a tangible outcome without being graded. With less concern for marking or tracking, students may be able to concentrate more on their learning capacity and outcomes from a constructivist perspective. Therefore, it is reasonable to assume that competency-based education may not place as much emphasis on grades as tracking does, which must divide students into various course levels based on grades. Instead of focusing on the letter of the grade and the course levels, the students would be in, competency-based education may concentrate more on the real learning outcome, which is the comprehension of the knowledge and its application to real-world situations. In this way, the issue of students focusing too much on their course level or the issue of students feeling their self-esteem has been harmed as a result of tracking might be avoided. Additionally, there may be some students who are less concerned with grades than they are with gaining practical knowledge. In these cases, competency-based education may be a better incentive for them to continue learning as they discover that their school encourages them to exploit their intelligence in real-world situations rather than focusing on paper exams.

While there is insufficient evidence on the efficacy of competency-based education, some students who participate in a case study of a psychology course in the competency-based education format report that they gained a deeper level of knowledge, including some cannot learn in a traditional course, and the CBE format, which relies more on projects as the demonstration of knowledge, was both helpful in solidifying their learning and enhancing their time management ability [14]. Moreover, research has been conducted to study the relationship between a competency-based education system and student learning. A systematic analysis of competency-based education in nutrition education revealed that improvements in knowledge, abilities, and preparation to enter the workplace of learners due to competency-based education are shown in all findings [15].

4.2. Peer Assessment

Peer assessment (PA) can be defined as the method by which students estimate or are estimated by their peers on the quantity, quality, and value of their learning outcomes, which has numerous forms in educational practice, including marking a peer's research report and offering insightful comments on a classmate's task performance [16,17]. In addition, peer assessment has its roots in Vygotsky's social development theory from 1978, which highlights the significance of social interaction in learning since the theory claims that children develop socially through interactions with their peers, instructors, and families in a community [18]. According to Wertsch, small-group dynamics and communicative practices can be used to describe interpsychological processes, which usually involve dyads of people engaging in actual social contact [19]. Thus, it could be assumed that peer assessment, which involves two students giving each other feedback, would be able to be described as an interpsychological process as well. Moreover, it is interesting that the first implementation of peer evaluation was in the Kingston University BA(Hons) in the Music program in October 1992 to reduce the amount of time instructors spend marking musical compositions and especially to provide rapid and effective feedback to students [20].

It is asserted that the abilities gained through critically analyzing the work of other students can then be applied to the student's own work, providing a deeper grasp of how to enhance their own performance [20]. In contrast to merely waiting for teacher grades, students have more opportunities to think and analyze critically during the peer evaluation process. Furthermore, students might experience greater engagement and professionalism as they evaluate their peers' assignments because they are required to comprehend and apply the marking criteria appropriately as teachers. Through this process of reflection, learners could solidify their understanding, concentrate more on thinking, and feel proud of themselves for acting as a teacher, which may be a better reward to students than simply placing them in various courses based on grades. Peer assessment would therefore provide a more intrinsic incentive than tracking, along with the satisfying experience of helping peers evolve.

According to Schwartz et al., social relatedness, one of the three fundamental intrinsic motivators, could promote motivation since it taps into people's need to connect with one another [4]. Moreover, inherently motivating typically includes other factors such as compelling storytelling, fantasy, and the opportunity to make decisions [4]. Since peer assessment gives participants the chance to connect with each other and exercise decision-making during the evaluation, it might be argued that both of the intrinsic motives listed above are present. Thus, both receiving criticism from peers and delivering feedback to others could be the learning process that could encourage students to consider more from the perspective of their instructors, concentrate more on the process of thinking knowledge, and seek out additional knowledge.

Although peer evaluation has enormous potential and is widely used, there is insufficient empirical data to support its efficacy impact on learning. In a meta-analysis done by Li et al., a nontrivial positive impact on students' learning performance from peer assessment, in general, is discovered [18]. Li et al. notice that when there are multiple peer assessment sessions, clear grading criteria, and written as well as spoken comments, the peer evaluation effect size appears to be greater in a number of circumstances [18]. Moreover, McGarr and Clifford report that students demonstrated an elevated degree of interest in peer evaluation tasks, and it was clear from observations that they devoted an immense amount of effort to evaluating their classmates [21]. In addition, the research done by Iglesias Pérez et al. proves that the difference in final qualification between instructor and classmates for each student rarely exceeds more than one point, whereas in 83% of cases, less than half a point [22].

5. Conclusion

Although tracking and its alternatives are overall beneficial and effective, most of them are challenging to widely implement in Chinese middle and high schools for a variety of reasons. For instance, due to the structure of the Chinese educational system, students require results that represent their academic success in the most direct and clear manner to better prepare for Gaokao (Chinese college admission exams), and parents seek the most straightforward format of the grades to help them understand the learning outcome of their children and then educate them. In addition, there are many students in Chinese institutions, typically with classes exceeding 40 students. This would also be a huge obstacle to applying the above strategies to Chinese middle and high schools.

Generally, this article first discussed how behaviorist theories of how people learn are used to inform tracking practices in American high schools. Afterward, a variety of theoretical hypotheses were explained to reveal if tracking may affect students' academic performance and acceptable behavior in institutions. The study paid particular attention to how cognitivist and socialistic viewpoints might be utilized in any analysis of the value of tracking. Finally, the author discussed the actionability of the tracking system and its alternatives in Chinese education.

Even though there are some divergent opinions on track, it is undoubtedly an essential component of modern education. However, educators should be more mindful of how tracking is applied in the educational process rather than merely using it because it was popular at the time. Thus, it is obligatory to adopt a critical perspective and use it judiciously with the aim of increasing the effectiveness of this teaching strategy.

Despite being fairly comprehensive, the current version contains several limitations, particularly the lack of actual investigation. Therefore, future studies could attempt to compare and examine both learners' responses and learning outcomes to the various teaching approaches, including tracking, competency-based grading, and peer assessment, in order to explore or balance a more appropriate and efficient approach to educating students and seek to apply it to Chinese institutions as well.

This study might be practical to teachers, parents, students, schools, and the education sector. It could provide a deeper grasp of learning theories related to track, and insights into them on utilizing the tracking approach and potential alternatives to improve students' learning efficiency and outcome.

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