

Current research on learning styles of gifted learners

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Introduction

Throughout the last five decades in educational research, there has been an ongoing dialogue surrounding the different ways students, of all ages and ability levels, approach the learning process, and whether these differences should be reflected in the pedagogical process. Additional to this has been the controversy surrounding the validity and reliability of such research studies, which either support or refute the idea that by teaching to these learning approaches, there will be greater academic gains for all learners than is experienced through traditional teaching methods. In reverse to this, students may therefore experience varying levels of underachievement if teaching and learning approaches do not include acknowledgement of their learning styles. A further layer of complexity to these discussions is related to the learning styles exhibited by gifted learners, as different from their same age average or lower ability peers, and whether the recognition of these styles has an even greater impact on their performance levels than their average ability peers (Sak, 2004).

Definitions

The main commonalities found in general definitions of learning styles focus on the concepts of how students acquire, process and retain information (Dunn & Dunn, 1993; Felder & Silverman, 1988; Jonassen & Grabowski, 1993; Rayneri, Gerber, & Wiley, 2006). Some definitions also refer to categories of learning styles such as auditory, visual and kinesthetic, whilst others refer to the environmental and personal components, which are linked to these learning styles (Dunn & Dunn, 1993). For example, Willing (1988) asserted that learning styles are innate, intrinsic and preferable learning methods, whilst Keefe and Ferrell (1990) posited that a learning style is a relatively consistent set of strategies in how a student perceives, interacts with and responds to their learning environment, including cognitive, affective and psychological components of learning. Finally, findings by Samardzija and Peterson (2015) suggest that 'preference' might be a more appropriate term than style when complex aspects of abilities, personality, personal comfort, and learning contexts are considered.

Differences between gifted and average ability learners

The results of studies involving gifted students and their learning styles vary. Dunn and Price (1980) studied learning style characteristics to see if they might discriminate the gifted from the non-gifted, and found the gifted could be differentiated from non-gifted on the basis of six of 22 learning style variables. The six consisted of such things as responsibility, structure, and tactile-kinesthetic preference. However, there has been considerable debate over the last 30 or more years as to whether learning styles can be considered a qualitative difference to determine giftedness.

Whilst some studies have focused on the commonly recognised styles of auditory, visual and kinesthetic, Rayneri et al. (2006) found that gifted students tended to be kinesthetic learners in the early years and primary grades but that they used a broader variety of styles than did their average ability peers. Griggs and Dunn (1984), reviewing literature on learning styles of elementary and middle school gifted students, found that "gifted children have well integrated perceptual strengths" (p. 115). However, the younger preferred only kinesthetic learning, and the older preferred kinesthetic and visual, but not auditory. These findings correlated with Dunn and Dunn's (1993) and Rayneri et al.'s (2006) findings that primary aged gifted children tended to be kinesthetic and tactile learners first and then develop visual capability during maturity and auditory during adolescence. Dunn and Price (1980), in a comparative study, found that gifted students preferred auditory learning less than average ability students, speculating that "because of their ability to grasp ideas easily, gifted youngsters are likely to learn at a pace more rapid than teachers can speak" (p. 35).

Although several models have been used to ascertain the learning styles of gifted learners, the best known of these models is the Myers-Briggs Type Indicator (MBTI). Although the MBTI assesses personality types, the MBTI profiles are known to have strong learning style implications. Sak, (2004) found the most common personality types among gifted adolescents were 'intuitive' and 'perceiving'. They were higher on the Introversion, Intuition, Thinking, and Perceiving dimensions of the personality scales of the MBTI when compared to general high school students.

In a series of ongoing studies by Mills (1993), and Mills and Parker (1998) which examined the learning styles of adolescents, clear personality differences were found between gifted and average same age students. The gifted students expressed greater preferences for introversion, intuition, and thinking as per the MBTI and overall more

academically gifted students expressed a preference for a perceptive style. They also tended to be higher on achievement motivation and lower on interpersonal and social concerns. The most consistent finding across all studies was that the majority of gifted students scored highly on N (Intuition), indicative of a preference for the abstract and theoretical.

Implications of Learning Styles

According to Akkoyunlu (1995), identifying the learning styles of students will help the teachers in the matter of developing suitable methods for teaching process. Hein and Budny (2000) found that when the learning environment was designed to accommodate the learning styles of the individuals, their achievement increased. Tomlinson et al. (2003) argued that knowing students' learning preferences can help teachers differentiate curriculum and services, leading to "improved academic and attitude gains in students from a wide range of cultural groups" (pp. 129–130).

Lamarche-Bisson (2002) claimed learning style differences affect "how we learn, how we solve problems, how we work, how we participate in different activities, how we react in a group, and how we relate to others around us" (p. 277), noting that most people have a dominant learning style, but students who understand their pertinent strengths and weaknesses can learn to adapt when needing a different style. Self-aware students can work to improve non-preferred styles, potentially increasing their achievement in courses that do not fit well with their dominant learning style.

It is important to understand the following points when considering the learning style implications for curriculum planning and programming for all learners, but particularly the gifted learner (Felder & Brent, 2005):

- Learning styles may present as mild, moderate, or strong preferences.
- Students with any learning style can succeed in any career or endeavour. Students shouldn't be given students career or curriculum recommendations based on their learning styles.

Underachievement

Classrooms are not always stimulating to the level required by gifted learners and the regular curriculum has "been found to undermine, rather than support a passion for learning" (Siegle, 2001). McCoach and Siegle (2002) suggest that gifted achievers may positively acknowledge their ability, whilst gifted underachievers find their ability a possible limiting factor in their success. In fact, achievement, and thus the reverse, underachievement, may reflect an interaction of these beliefs. Underachievers may believe that they do not have the skills to do well and are afraid to try and fail; or they may not see the work they are being asked to do as meaningful; or alternatively, they may believe that everything is against them and nothing they do will work towards success (Siegle & McCoach, 2005).

In reverse, achieving gifted learners feel good about their abilities, find their work meaningful and they feel supported and appreciated in their environment. Gifted students who are motivated and achieving tend to believe they have the skills to do well (self-efficacy), find the work meaningful (goal valuation), and view their environment as supportive (environmental perceptions). Each of these positive attitudes results in a behavioural strategy (self-regulation) that results in achievement (McCoach, 2010; McCoach & Siegle, 2001; 2002). If any of these components is lacking, regardless of the strength of the others, motivation is hindered.

Siegle et al. (2006) found that interventions to reverse underachievement when linked to making school more meaningful and increasing student connections to school produced the strongest gains in academic grades. Discussions centering on student interests has been found to be the key to increasing passion in school as long as this is aligned to the creation of an intellectually stimulating and challenging environment (Fredricks, Alfred & Eccles, 2010).

Conclusion

Research suggests that students taught in a manner matched to their learning style preferences tend to learn more than students taught in a highly mismatched manner. It does not follow, however, that matching instruction to fit students' learning styles is the optimal way to teach. Rather, the optimal teaching style strikes a balance (not necessarily an equal one) between the different dimensions of the chosen learning styles model. When this balance is achieved, all students are taught sometimes in their own learning preference, so they are not too uncomfortable to learn, and sometimes in a learning style less preferred, so they are given practice and feedback in critically important skills they might never develop if instruction were perfectly matched to their preferences.

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