

Critical Excerpts (Critiques) On Children's Behavioral Development (CBD)

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Introduction

The seminal research regarding the contemporary Children's Behavioral Development (CBD), specifically Children's Private Speech (CPS) and Self-Regulation Learning (SRL), began in 1920s with the early work of Vygotsky and Jean Piaget 1950s. Since that time, the research came up with different and various outcomes associated with many and various critiques that the new research should take into account. Those critiques may lead the future work of CBD.

Vygotskian's vs. Piagetian Research

Vygotsky viewed CPS as a function that directly connected to thought, problem solving, increases linearly with task difficulty and success, and represents a stage in the gradual internalisation of interpersonal linguistic exchanges whose final ontogenetic destination is inner speech or verbal thought. Vygotsky also believed that Self-Regulation Learning (SRL) is *behavioral* appearing after and as a result of regulation by others in a specific task and promoted by external regulators. Paradoxically, Piaget viewed CPS as egocentric or immature and believed that SRL is promoted by giving children extensive opportunities to make choices and decisions, to make rules by which they will regulate themselves. Piaget also believed that SRL is *psychological* presented from early infancy in the child's equilibration of actions and regulation by others does not have to come before self-regulation in a specific task. Piaget also argued that regulation by others hinders/devastate the development of self-regulation [1]. Recently, some researches [2-4], have briefly formulated what the previous work of SRL concluded as an empirical research question "*how learners become strategic decision makers rather than strategic planner*". This answer, however, remains challenged up to date.

Some Theoretical Critiques

Remarkably, the subsequent research, up to date, are fully guided either by Vygotsky [5-8] (e.g., Daugherty,) or Piaget [9] with only one major difference (if it can be seen and considered as a difference) is that, they used many alternatives to describe the concept of CPS such as self-verbalization [10] self-directed speech [11], and, most recently, self-talk [12] without explaining why those alternatives! Ironically, all those alternatives refer to the same phenomenon of children's overt speech to themselves during learning tasks as Vygotsky and Piaget already introduced! In this context, it is expected to see new terms to describe the concept of CPS *but* without any valuable or major changes that may lead, or at least inspire, the researchers to seriously think about a revolution in CBD given the fact that CPS and SRL still the based. In more specific language, what valuable will be added to the literature with new terms of the same phenomenon more than confusing the readers and the researcher as well?

Some Experimental Critiques

The research regarding CBD still involve the external regulators (teacher, experimenter, ... etc) to instruct and guide the participants, especially young children, before/during/after the experiment in which all of them still followed either Vygotsky's views or Piaget's views [12-14]. On one hand, such external regulation, which is an actual form of social interaction, may negatively influence children to verbalize their actual regulation behavior and, therefore, direct their cognitive process towards undesirable verbalization/interaction. This external regulation,

precisely, may cause children to divide their cognitive capacity between the present task and understating the external instructions, thereby forcing their cognitive process to act in different directions (i.e., towards a task focus process vs. an external focus process), which is so-called extraneous cognitive load that should be eliminated, or at least minimized, during the learning process [15]. On the other hand, the children's silence during the performance is also a cause for concern, especially for long time where the verbalization becomes invaluable and may lead to undesirable interaction as well. However, some researchers [16-17], have criticized the thinking aloud (TA) technique for the fact that TA and the limited capacity of memory hinder the participant's cognitive processes. Thus, affecting performance if the tasks involve a high cognitive load especially especially with the presence of the external regulator that, to a great extent, creates the problem of separating CPS and TA verbalization from the undesirable speech [10]. Given the fact that CPS and TA have the same mechanism of occurrences, the literature still lacks such a research that clearly show the difference between them and how can CPS be distinguished from TA?!

Some Methodological Critiques

Remarkably, TA has always considered as a high level of the participants' interaction because they are *spontaneously* talking to themselves and *loudly* thinking about their exact thoughts and feelings regarding the given task. In terms of human nature, however, this "thinking aloud", as a method of eliciting data, is not the same as "thinking aloud" in the everyday sense, which entails something other than sitting people down next to a tape recorder and asking them (actually, forced them) to talk/think loudly [18]. Stated differently, the pure thinking aloud, by nature, should *spontaneously* be occurred and without any Human-Human Interaction. In terms of Human-Media-Interaction, thinking aloud, based on its natural mechanism, can be considered as the spontaneous-interaction, which is completely differ from the compulsory-interaction, undesirable-interaction and inner-interaction. Despite the different and various outcomes concerning children's development, the research so far still relies on *human* as an external advisory/regulator/experimenter either *before* (How to train children to use the environment?), *during* (What should children do during the progression especially when they are seeking help instructions?), or *after* (How can children be able to answer the associated questionnaire without Human-Human-Interaction (HHI)?) given that the literature has been demonstrated that self-report measures do not necessarily give a reliable picture of the students' exact process they actually engage in [12]. Therefore, given the cognitive fact that the use of HHI with

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children during the progression distorts, if not devastates, the natural occurrence of interaction, the given three practical processes “before”, “during”, and “after” remain the most significant challenge in the cross-disciplinary research of HMI and CBD especially with young users.

Regarding children's play, the research [19] reported that children's play often takes place at playgrounds. Playgrounds can take many forms ranging from the traditional school or park playground to novel interactive digital playgrounds. Digital playgrounds differ from traditional ones in that they are augmented with different kinds of technologies that can enhance engagement, entertainment, social interaction, physical exertion and immersion [20]. However, the literature, so far, still lacks researches that use such a computer-based environment that acts as a stand-alone to prevent any Human-Human-Interaction (HHI) either *before*, *during*, or *after* the progression to explore the extent the HMI can be used as close as possible to natural HHI when young children, especially at an early age, are conducted to be the participants.

Some Critiques on Task Performance

In the literature, many types of task feedback have been investigated by the researchers [21]. The most common types are Knowledge of performance (KP), e.g., “you solved 90% of the problems correctly”, Knowledge of result/response (KR), i.e., “your answer is correct/incorrect”, Knowledge of the correct response (KCR), i.e., provides the correct answer to the given task, Answer-until-correct (AUC), i.e., providing KR and offers the opportunity of further tries with the same task until the task is answered correctly, Multiple-try feedback (MTF) provides KR and offers the opportunity of a limited number of further tries with the same task, and Elaborated feedback (EF) provides additional information besides KR or KCR. However, the question of whether young children, especially at an early age, are able to assimilate or even to understand the meaning of these types of feedback remains challenged. In terms of task performance, if the young user, on one hand, completes a task simply to receive a grade and the grade is not what he thought it should be, then he will be disappointed and provide less effort in the next task (i.e., less interaction will be showed/gained in the next task). On the other hand, the young user who completes a task to satisfy his curiosity and receives an average grade will provide more efforts in the next task (i.e., more interaction will be showed/gained in the next task) to quench his curiosity or master a skill [22,23]. This conclusion, to a great extent, makes a ‘collision/contradiction’ with the fact that whether the young user's task precision (i.e., correct vs. incorrect answer) is an actual and real measurement of the higher vs. lowest interaction respectively. Based on that, choosing the level of the task complexity (simple vs. complex) is also under questioning!

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