

## 【論文】

# The turn toward active learning in Japanese education: Pedagogical foundations and an appeal for theorization

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## 要旨 (Abstract)

The term active learning is increasingly heard in Japanese institutions of education at all levels, with its origins within Japan in policy directives from as early as 2012 by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The purpose of this paper is to argue that the value of active learning becomes understood only when it is properly situated within theoretical reasoning, and that such reasoning assists with dissolving some of the reductionisms which include overly simplistic claims about the traditional lecture and teacher-centeredness. A hypothetical lecture scenario is elaborated using social-constructivist theory to illustrate how the lecture can be construed as quintessentially learner-centered and active. A brief overview of the origins of these terms, both from within Japan and internationally, precedes broad theoretical discussion aimed at situating social constructivism and backlighting the later elaboration of the hypothetical lecture scenario.

キーワード (Keywords) : Active Learning, Socio-Cultural Constructivism, Cognitive Constructivism, Lecture Format

## Introduction

Teachers in Japanese educational institutions are increasingly hearing the term *active learning*, and in the majority of cases, in the context of its advocacy as progressive and the course for change. Quite often, this advocacy is cast in some form of opposition to the traditional lecture format. This oppositional framing is not exclusive to Japan and appears to reflect the wider state of academic discourse (see Zakrajsek, 2018). The purpose of this paper is to engage the frequent lack of theorization which attends discussion of active learning and which can promote such adversarial thinking. Quite often, for example, academic papers on active learning will introduce the term by defining it and perhaps elaborating on it through exemplar. Also common is the summarizing of previous definitions in advance of offering some sort of commensurate working definition. It goes without saying that definitional approaches are by nature descriptive. Not absent, but perhaps too infrequent, are approaches which attempt to explain and situate active learning within developmental, pedagogical and psychological theory. The engagement with theory in this paper is necessarily excursive rather than detailed and exhaustive, and it is also quite broad. Schools of thought which have laid the deep contours for the far-reaching trajectory of ideas on learning and development over the 20<sup>th</sup> century are selected. These schools are also selected for being well situated within the traditions of philosophy more generally and epistemology more specifically, and for having obvious attachment to the psychology of learning. This approach is adopted because a wide-angle lens does offer some perspective which is often not represented in active-learning literature typically populated with schematics, flowcharts, and other such approaches to elaborating models of learning.

Predominantly, the theory exercised in this paper concerns the psychology of learning and the fundamental

critique of behaviorism represented by constructivism in two distinguishable versions; the school of thought emanating from Jean Piaget and that emanating from Lev Vygotsky. The critique of behaviorism offered by Chomsky is also elaborated in this paper but not advanced with respect to active learning, because it was largely restricted to the special case of first language acquisition. Furthermore, while his critique did open the way for the cognitive revolution, which was more conducive to constructivism, because it opened the way for direct engagement with mind, it did not find a major place in pedagogy as constructivism did. This was because his alternative to behaviorism, in the account of naturalistic first language learning, was quite radically mentalist or nativist. The constructivist critique of behaviorism, however, whether Piagetian or Vygotskian, was neither empiricist (associated with behaviorism) nor mentalist (associated with nativism); and emphasized agentic mental activity rather than behaviorist mental passivity in child cognitive development, and by extension learning in general. This theoretical posture quite obviously aligns with the notion of active learning. The paper begins with a necessarily brief overview of the emergence of the now popularized notion of active learning both from within Japan and outside of it, and then turns to the course of theoretical developments in the 20<sup>th</sup> century, and the place of these developments with respect to received epistemological positions inherited from pre-20<sup>th</sup> century Western philosophy. This cumulative theoretical analysis serves the central claim that the work of Vygotsky is particularly suited to theorizing active learning, and a hypothetical teaching scenario is elaborated in these terms to illustrate how theorization can dissolve received truths currently circulating about the traditional lecture and its supposedly problematic position with respect to active learning.

### **Context and Origins of the Notion of Active Learning**

The frequent jump-off point for much of the literature when reporting the origins of active learning is a Higher Education Report (Bonwell & Eison, 1991) entitled *Active learning: Creating excitement in the classroom* and published by George Washington University, and one will see this text featuring in recent literature on the subject emanating from Japan (e.g. Ito & Chan, 2017; Matsushita, 2018b; McMurray, 2018; Waniek & Nae, 2018). The text was associated with a significant increase in attention for active learning, but as the text itself points out, the notion was already gaining traction in the 1980s, although an identifiable origin for it was apparently not clear. Bonwell and Eison (p. iii) point out that, at the time, many higher education leaders were advising university faculty “to actively involve and engage students in the process of learning,” while at the same time this plea was being supported by a series of national reports. The authors also argued that educators’ use of the term was based more on intuition than an accepted definition, and that at least some educators were operating under the presumption that learning is necessarily active and all methods therefore support this. The central critique presented in their text, however, is directed toward the traditional lecture format, arguing that more interactive forms of teaching provide for more active engagement on the part of students. In this context, it would be safe to argue that Bonwell and Eison’s contribution was anticipated by concerns expressed in North America in the 1980s but that it provided a significant catalyst to interest in the area in the 1990s.

There are two notable features of this seminal text. The first is that the text does not comprise an extended theoretical case for active learning, but does critically engage with empirically-led studies supporting what they term the modified lecture; essentially the traditional lecture augmented by certain techniques to promote learner

engagement. The non-theoretical posture of the text amplifies the concern informing this paper which is that the notion is often insufficiently theorized even in, what is arguably, its seminal expression. This is a concern which is not exclusive to this paper. Drew and Mackie (2011), for example, consider the question as to whether active learning is a theory of learning or merely an aggregation of teaching strategies. The second notable feature of the Bonwell and Eison (1991) text is that the case for these more interactional forms of teaching is associated with a critique of passivity in learning which they associate with the traditional lecture format. This critique of passivity comes as early as in Chapter One of the text (p. 1) where the authors cite a quote from Johnson, Spalding, Paden and Ziffren (1989, p. 68) at the head of the chapter, stating: “Active inquiry, not passive absorption, is what engages students. It should pervade the curriculum.” On the first feature, namely, that no extended theoretical case for active learning is mounted, the text does present in some ways as a “how to” manual for active learning. This should not be read as a criticism of the text for being so, but it does describe the purpose of the text and its place in the literature. Also, this instructive rationale expresses itself in the text via the listing and elaboration of a number of strategies which invite interaction. This tendency to define active learning as an aggregation of strategies put in service to more interactional learning persists through the literature which followed. On the second point, and although this is not explicitly stated, or theoretically advanced, the context for the critique of passivity in learning bears noticeable heritage to the theoretical turns of the middle twentieth century, namely, the critique of behaviorism for the explanatory poverty of having a passive theory of mental development. The paper will return to this issue below, but suffice to state at this point that the association of the traditional lecture with the passive absorption of knowledge and with behaviorist perspectives on learning arguably represents a case of overreach in the critique of behaviorism.

Turning to the emergence of active learning as a prominent concern in Japan, Ito and Chan (2017) have argued that the term started to gain policy-led traction in Japan around the time of 2010, and they cite Mizokami (2014) for having made this same observation. This argument is based on the emergence of certain relatively high-profile reports and policy documents which promoted it. The first of these, cited by the above authors, was a report entitled *Towards a Qualitative Transformation of University Education* (Central Council for Education, 2012) and the second was a 2012-2015 Ministry of Education, Culture, Sports, Science and Technology (MEXT) project involving a number of universities entitled *Improving Higher Education for Industrial Needs (IHEIN)*. Matsushita (2018a) also cites the 2012 report from the Central Council for Education as a critical moment for acceleration of interest in active learning in Japan. In similar fashion to the manner in which Bonwell and Eison’s (1991) seminal text was anticipated by more circumscribed interest within the prior literature, Matsushita also claims that, in Japan, the 2012 document from the Central Council was preceded by interest in active learning by Japanese academics, but only among a few specialists. In fact, Matsushita points back to as far as the early 2000s for this anticipatory interest in active learning, and she associates this with the point at which Japan started to achieve very high rates of university entrance. Subsequent to the 2012 document from the Central Council for Education, she also cites 2014 as a significant moment, because it was at this time that active learning started to appear in elementary and secondary school policy.

One parallel and important area with respect to the origins of interest in active learning in Japan concerns the interface between tertiary education and the world of work. Ito and Kawazoe (2015), in similar fashion to

the analytical direction taken by Drew and Mackie (2011) in the context of the UK and Europe, locate interest in active learning within the more general problem of employability skills in a fast changing world of lifelong learning for work. Ito and Kawazoe provide four areas of citation for this analysis. The first citation concerns the introduction by the Ministry of Economy, Trade, and Industry in 2006 (Ito & Kawazoe, 2015), of the policy concept of *Fundamental Competencies for Working Persons* (In Romanized Japanese: *syakaijin kisoryoku*). The second citation concerns the introduction, by MEXT (2008), of the notion of "competences expected of university graduates" (In Romanized Japanese: *gakushiryoku*), while the third citation concerns the initiation of a project in 2009 (citing Kakuhou, Matsumura, & Hirata, 2011) relating to employability skills. The final area of citation concerns the case of IHEIN referred to in the previous paragraph. The general line of argumentation with respect to active learning and the world of work is that learning has become perpetually necessary in order for workers to adapt to a fast-changing economy. For learning to be perpetual, it is necessary to have people who are equipped to learn effectively and autonomously, and active learning is presumed to be empowering in this respect. An additional line of argument (Matsushita, 2018a) is that the turn to active learning represents a response to job conditions which are increasingly aligned with apparently Western views of work and the preparation of students for such. However, it is more probable that changes occurring in Japan are not particular, and perhaps a significant line of inquiry in this regard might deal with the extent to which interest in active learning reflects transformations in knowledge production. Here the relevance of work by Gibbons et al. (1994) is pertinent. Though it is outside the remit set for this paper, it is worth briefly noting that their notion of Mode 2 knowledge production, which they explicitly align with transdisciplinarity, and which posits increasing production of knowledge at the site of application, rather than through the disciplinaries and for disciplinary gains, captures a view of the more recent knowledge production landscape which may well be driving agendas with respect to active learning.

From a critical point of view, and turning back to active learning within Japan, a more recent and welcome concern, driven by researchers like Matsushita (2018a), is that policy initiatives for active learning can, almost inevitably, result in implementations which both sensationalize and trivialize the original conception. In redress to this problem, Matsushita and related researchers have attempted to qualify the term *active learning* by coining the term *deep active learning* (Matsushita, 2018a, 2018b), with the purpose of stimulating a line of inquiry aimed at preventing the tendency toward active learning "end[ing] up as just another variation of class formats that include activities such as group work, discussions, and presentations" (p. 7). This line of critical engagement with active learning is conceptually aligned with the central concern of this paper, which is that an undertheorized body of literature, and one characterized more by description, definitions, class formats and thematic aggregations of activities, does not promote a notion with critical force and depth. At worst, undertheorization leads to unhelpful reductionisms and even the vulgarization of the concept itself. It is especially the case that when a field of interest has burgeoned into a plethora of cumulative work with disparate starting points, competing definitions, and nonconsensual understandings of the problematic, theory provides the moorings for a critical posture and way out of the malaise. And if one of the hazards is that the term active learning may become sensationalized and trivialized, then a critical posture is perhaps an antidote to this hazard.

## Active Learning and Associated Intellectual Roots from Philosophy and Psychology

As referenced above, there is a frequent lack of theorization attending much of the literature on active learning. The general, though not entire, approach is often associated with definition and exemplar rather than theoretical reasoning, and these are obviously not the same thing. As far as the definitions are concerned, so many have now been advanced that the initiate into the field may feel quite overwhelmed. This has led some authors to dispense with the typical preliminaries of summarizing the existing definitions, and to move straight to offering their own working definition. Mizokami (2018), for example, starts a recent article on active learning by declaring that it has proved impossible to arrive at a definition that everyone agrees on, and with this in mind, he quite aptly proceeds to provide the definition suitable to his purpose. It is quite arguable that this rather disorderly picture of abundant and often incommensurate definitions is due to the failure of active learning to fully emerge in theoretical space, because theoretical space tends to reduce descriptive complexity to more manageable explanatory notions while at the same time avoiding oversimplification or reductionism. In fact, and with respect to this problem of undertheorization, the earlier cited question in this text, posed by Drew and Mackie (2011), as to whether active learning is a theory of learning or simply a collection of teaching strategies, is quite pertinent. If it is merely the latter, that is, a collection of teaching strategies, definitions will struggle to be concise in the losing game of capturing the diversity of these strategies.

On the question of whether active learning is a theory of learning, there really is not much evidence for this. Perhaps the better question concerns, from a critical point of view, how well the notion of active learning has been elaborated within theoretical space. After all, a notion like active learning does not have to emerge as a theory in and of itself, but it is necessary for it to be properly situated and elaborated within existing theoretical space if it is to emerge beyond a hopeless plethora of definitions. Active learning should be a conceptual notion and not a descriptive notion, and theorization enriches conceptual notions. If theoretical elaboration draws on high levels of abstraction, the noise will be reduced and greater explanatory power and simplicity will be achieved. Additionally, and this is an important issue to which the paper will return below, theory, if applied appropriately, has a way of dissolving apparent controversies which description cannot. If deliberately and critically applied, theory allows us to think about what is actually going on in learning, and in a manner which moves beyond reductionisms and false alternatives such as the traditional lecture versus active learning.

Despite the problem with the diversity of definitions, the central notion of activity itself, typically cast in oppositions to passivity, is almost always present. It is here that we might then begin an excursion into theory which is appropriate for situating active learning. Forgoing the arguments (see Drew and Mackie [2011] for reference to these) that all learning is by definition active, and rescuing the notion that some forms of learning are more active than others (Watkins, Carnell, & Lodge, 2007), it is worth examining historical influences which have supported more passive views of learning. Typically, the place where analysis begins in this regard is with behaviorism, but it is helpful to go a little further into the past to consider the antecedents of behaviorism itself, if only to exemplify how our conundrums about knowing and learning tend to revisit us in only slightly altered form over the passage of intellectual history. With respect to behaviorism, a step back to the philosophical school of British empiricism, which emerged in the 17<sup>th</sup> century, and which included as important proponents John Locke, George Berkeley and David Hume, is fitting. While a detailed account of British empiricism

is not possible in this paper, there are some critical features of it which are worth noting for the arguments which follow. The first is that human knowledge and human learning were viewed by this school of thought as *a posteriori*; that is, after the fact of sensory experience and as emanating exclusively from sensory experience. The second is that one of the primary means by which this experience becomes knowledge is by the association of these sensory experiences with each other. Importantly, and there will be more on this later, this philosophical tradition was essentially cast against the tradition of rationalism (associated with the European continent) which distinguished itself initially through the work of Rene Descartes. This alternative tradition premised innate ideas, or ideas which precede sensory experience, with these ideas therefore being *a priori*. In more modern terminology this notion of innate ideas would resemble the notions of nativism or mentalism, which is roughly speaking the claim that the infant is born pre-wired with certain cognitive capacities. However, and returning to the school of British empiricism and to behaviorism, the connections between the two are not difficult to see. Behaviorism, as is well known, centered on the stimulus and the response as the primary mechanisms for learning. Typically, the stimulus was seen as of sensory origin and the response as being behavioral; and learning involved ongoing processes of this form, including stimulus- and response-based associations reinforced to one degree or another.

The important features to underline with respect to both British empiricism and behaviorism are that learning is viewed as primarily receptive and as driven by the external world acting upon an essentially responsive, but not agentive, mind. This latter point is important because being responsive is not equal to being agentive. While the impact of British empiricism had a sustained and unfluctuating impact on science by laying down the requirement that science be empirical if it be scientific, its impact on psychological theory was principally through the theoretical vehicle of behaviorism which had a more uneven trajectory. Initially, behaviorism enjoyed near-overwhelming influence, but this was later forgone for rapid demise as its limitations were demonstrated. The period of near-overwhelming influence could roughly be considered as running the course of the first half of the 20<sup>th</sup> century, and its demise was the quite abrupt dispatch of late-stage behaviorism, represented in the work of Skinner (1957), by Noam Chomsky (1959); with this dispatch taking hold in the 1960s. The limitations of behaviorism as psychological theory, as exposed by Chomsky, bear strong resemblances to the limitations of British empiricism as epistemology. These limitations reside in the so-called poverty of the stimulus with respect to explaining human mental capacities, because these capacities seem to clearly exceed the sensory stimulus.

The poverty of the stimulus problem was exploited by Chomsky, in most elegant form, to rebut the attempts of Skinner to use late-stage behaviorism as an explanatory framework for first language acquisition, the most complex and distinguishing of all human behaviors. Chomsky's arguments, and to put things in very approachable terms, essentially pointed out that children are able to routinely produce grammatically strings which they have not heard before. Therefore, and necessarily, they are capable of producing strings for which there has been no stimulus or corresponding input. In this way, the stimulus-response model, as a closed and purely replicative system, is therefore unable to account for the creative quality and generative nature of language. This reasoned argument was nothing short of devastating for behaviorism, and it came in essentially revised form of the critique of British empiricism by the continental rationalists briefly referred to above.

Chomsky's more positive critique, namely, explaining about first language acquisition what behaviorism apparently could not, advanced a quite radical form of mentalism, which as a term does not have the arcane resonance of "innate ideas" used by rationalists such as Descartes (in English translation), but which is nonetheless clearly aligned with early rationalist positions (Chomsky, 1967). Chomsky appealed to theoretical notions such as the language acquisition device (Chomsky, 1965) and universal grammar to resolve the apparent contradiction between wanting to claim that linguistic knowledge is pre-wired into the infant and the rather inconvenient fact that the world of experience (read stimuli here) into which the child is born determines whether he or she ends up speaking Japanese, German or any other language. More specifically, his solution to this contradiction was to postulate, again quite elegantly, universal grammar as the innate structural foundation for all given real-world expressions of language, thus enabling a nativist claim for core linguistic knowledge without falling foul of the contradiction that children speak diverse languages rather than a single universal language.

It would be worth pursuing the ideas of Chomsky, if only for the sake of them and their critical impact on behaviorism and linguistics in the 1960s, and the same could be said of British empiricism but for different reasons. However, the brevity of this paper requires turning to the inferences which are directly relevant for situating active learning within broad theoretical space vis-à-vis these two schools of thought and as preamble to situating active learning with respect to constructivism later in this paper. With respect to the philosophical position of British empiricism and its theoretical heir, behaviorism, the limitations in terms of accounting for learning were quite apparent. For behaviorism, learning is viewed as essentially receptive and therefore passive. This has the problem that human capacities which quite demonstrably exceed what has been received, for example, the linguistic competence of the native speaker, cannot be explained. Beyond the theoretical limitation, this view of learning has a problem with actually explaining what distinguishes human mind, namely, cognitive agency, because it relies on a responsive model and not an agentive model of human cognition. While it may seem that the excursion into behaviorism in this paper is a case of beating a dead horse, because it is now long discredited as account for higher mental processes, and much about its inadequacy is now common knowledge, it is nonetheless important for two reasons. The first is that it sets at least part of the context for the theoretical positioning of constructivism as a theory of cognitive agency later in this paper. The second is that its demise in the 1960s was initially in the minds of the theoreticians more abstractly preoccupied with the explanatory problems it failed to solve. However, as with all things, it takes time for changes in the more rarified corridors of academia to reach the wider practices and thinking of those outside such corridors. This would apply to behaviorism too. The audiolingual method for second/foreign language learning, for example, which is highly associated with behaviorist principles, was destined for decline at the moment behaviorism was unseated by Chomsky's mentalism, but the decline was not immediate nor abrupt. Language learning laboratories equipped for such methods persisted for decades after the underlying shift in theoretical thinking had occurred.

In this context, it is probably not a coincidence that the notion of active learning was being anticipated in the 1980s which would have represented the tail end of behaviorism's residual influence on ideas about learning in real-world settings. It is also no surprise that what displaced it was to focus on what is active and agentive about learning. We can see exemplar of this, for example, within the area of second language acquisition research

and pedagogy which, previously dominated by the behaviorist-driven audio-lingual method for language instruction, experienced a rising interest in the so-called good language learner (GLL; Naiman, Frohlich, & Todesco, 1975; Rubin, 1975; Stern, 1975) in the 1970s, work premised upon the agency that the learner brings to second language learning. However, while it was not surprising that these shifts would eschew behaviorist-informed views of the passive learner, it is also here, precisely, that analytical and critical caution is required. Active learning, which quite obviously eschews passivity in learning, has been construed as antagonistic to the traditional lecture. However, it would be a critical mistake to associate the traditional lecture with behaviorist expressions of learning. The traditional lecture long predates behaviorism, and its association with passive learning should be critically questioned. It may even be the case that the lecture got swept up in the critique of behaviorism as collateral damage, to become portrayed as somehow aligned with passive models of learning; that is, models which typically equate teachers with content experts whose primary role is the transfer of content to a passive listener. It is with respect to the lecture that theoretical clarity is needed above all, because properly conceived and properly executed, the lecture can be understood as quintessentially agentic and therefore also active. Discussion below, following the elaboration of constructivism, will return to this issue in the spirit of exemplifying how theoretical reasoning can dissolve uncritically inherited reductionisms about the traditional lecture.

With respect to what can be concluded about the radical mentalism of Chomsky and the theoretical space it presents for active learning, which is not much at all, the following two points are pertinent. First, and most obviously, the contribution of Chomsky was quite restricted to the special case of naturalistic first language acquisition. Broadly speaking, it was not advanced as a general theory of learning with application to pedagogy, and its service to pedagogy was probably only in so far as it removed the obviously unhealthy dominance of behaviorism from the scene. Second, and in terms of the positive critique, its reprise of strongly mentalist positions, associated with continental rationalism, does not really open up much theoretical space for explaining why one form of learning might be better than another in formal education which is not naturalistic, and which is highly structured and highly mediated; and thus the need for methods, curriculums, assessment and above all teachers. Importantly, however, Chomsky's refutation of behaviorism opened up space for the cognitive revolution, in that the notion of mind, rather than just behavior, again became the legitimate object of scientific study. This created far more permissive conditions for constructivism, curated in the ideas of Piaget and Vygotsky during the period of behaviorist dominance, to flourish, even though they were not epistemologically aligned with Chomsky's radical mentalism.

In turning to constructivism, identified in this paper as of particular relevance to theorizing active learning, it is worth explicitly flagging the notion of curation offered immediately above. Constructivism gained wider berth for expression as the cognitive revolution got underway from the 1960s onwards, and as mind and agency once again gathered ascendancy as necessary objects of study, but it did not emerge as part of this revolution, or because of it. In fact, it had been around very much all the time that behaviorism had been the prevalent form of theoretical account. In this sense, it could be said that in all the years of behaviorism's dominance, constructivism persisted in offering an alternative view of how learning and cognitive development should be understood. Its lower profile vis-à-vis the contemporaneous and surging behaviorism of the early



to mid-twentieth century was very much a case of Aesop's fabled race between the tortoise and the hare, for it is constructivism which was to persist. It is noted for having two main variants, the first of these being cognitive constructivism, roughly aligned with the seminal work of Jean Piaget, and the second being social constructivism, also referred to as sociocultural theory, roughly aligned with the seminal work of Lev Vygotsky. In seeking an order of presentation, it is probably worth turning to Piaget's version of constructivism first, because his work was initially more widely influential due simply to the historical factors of Vygotsky's location in the more intellectually isolated Soviet Union of the time, and because at least some of Vygotsky's ideas are positioned as critique of theoretical viewpoints which Piaget took.

The ideas of Piaget can be misunderstood as being singularly associated with providing a theory of child development, and though his contributions did indeed provide this, it would be a mistake to under-characterize his work in this way. Piaget had early exposure to philosophy, and the kind of problems attached to epistemology such as the counter positions of British empiricism and continental rationalism, although it is arguable that his work is more actively aligned with the contributions of Immanuel Kant (Otte, 1998) who sought to step through the intractable struggle between these two counter positions. He also had a strong background in biology at a time when evolutionary ideas were well on their way to paradigmatic dominance. Against this background, he characterized his work as genetic epistemology meaning that it comprised an attempt to understand some of the philosophical questions about theories of knowledge, or epistemology, but through observation of the origins, or genesis, of knowledge in the developing child. In short, he was seeking an empirical solution to epistemology's problems, and here it is meant that his method was to be empirical, or based on direct observation, but it is not meant that his theory was empiricist in the tradition of British empiricism. On the contrary, it was constructivist and positioned, at least in part, as critique of empiricism as expressed through behaviorism. As Ginsburg and Opper (1979) point out, "[he] believed that a full understanding of human knowledge could be gained only through the study of its formation and evolution in childhood," and he further believed that biological concepts such as adaptation to the environment could be used in this endeavor. Summarizing the prodigious output of Piaget is a daunting task, and so critical selections of notions which bear on the discussion with respect to active learning are necessary. The first and most important of these is that the child is not simply taken as a responsive being, but rather as an active agent in his or her own learning and development. This occurs according to certain principles which, and as outlined by Piaget, bear clear inheritance to biological concepts. The two most important of these would be the tendency toward adaptation and the tendency toward organization, although within his work these concepts are obviously resituated from morphological development in phylogeny to cognitive development in ontogeny.

The cognitive tendency toward adaptation is elaborated through the concepts of assimilation, the process by which stimuli from the environment are subordinated to already present cognitive structures, and accommodation, the process by which already present structures are transformed to cope with external stimuli which will tend to exceed them. Through these two complimentary processes, and under agentic engagement with the external world, the struggle for equilibrium (another evolutionary notion) drives cognitive development through a number of stages, with the generalizability of these stages being perhaps one of the more controversial parts of Piaget's theory (Lourenco & Machado, 1996). The cognitive tendency toward organization is articulated

by Piaget through the notion of schemes or schema, and these are the organized patterns of behavior and thought which develop through assimilation and accommodation. Of critical importance to subsequent discussion on Vygotsky and his critique of Piaget, it is necessary to briefly elaborate Piaget's views on the developing child and language; views which were articulated in his work entitled *The Language and Thought of the Child* (Piaget, 1926). In the research covered in this book, he distinguished social speech from egocentric speech in young children. Social speech is natural speech used for communicative purposes, but egocentric speech is what we see when children talk to themselves, typically when they are involved in some activity. It can occur in isolation or in groups and it takes up a significant proportion of the child's overall speech output. It is in the theoretical account of what this egocentric speech actually is that Piaget and Vygotsky separate. Piaget viewed egocentric speech as an artifact of the child's egocentric view of the world, and as something which fades away as the child begins to be able to put himself or herself in the place of the other. This is important, because the child starts in his or her own world and then reaches the other, and development is construed as procession from the inner- to the outer-world. Vygotsky was to invert this account as will be discussed below. However, while it is difficult to summarize Piaget's work fairly in a paper of this scope, it is worth noting that Piaget's roots in the biology of the time were probably responsible for a theory which gives little place to the social in the course of development. The child's development is treated through his or her individual engagement with the objective physical world as a cognitively adaptive but singular being. There is limited focus on the child's engagement with the social world, much less any theoretical notice given to the idea that the social world might take a grip of the child's development. Vygotsky was to insert his critique precisely into this space.

As with Piaget, understanding Vygotsky requires some consideration of his intellectual roots, the most important of which would be the writings of Karl Marx and Friedrich Engels. This heritage was largely neglected by Western academia (Fu, 1997; Vianna & Stetsenko, 2006) as his ideas received belated attention and surging interest in the West from the 1980s. Most important in this heritage would be the Marxist perspective that consciousness is historically and socially situated. This perspective was succinctly stated, almost as intellectual canon, in the preface to *A Contribution to the Critique of Political Economy* (Marx, 1859; translation by S.W. Ryazanskaya, 1971): "It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness" (Preface, p. 2). Vygotsky's work should not be reduced entirely to this axiomatic principle, because there was much else inherited from Marx and Engels, including ideas on the tool and the sign, but as Cole and Scribner (1978, p. 7) in the introduction to *Mind in Society* (Vygotsky, 1978; edited collection of works from the 1930s) put it, "Vygotsky believed that the internalization of culturally produced sign systems brings about behavioral transformations and forms the bridge between early and later forms of individual development." This quote goes directly to Vygotsky's critique of Piaget's view that egocentric speech is merely artifactual to the egocentricism of the child. To elaborate, both Vygotsky and Piaget started from similar positions in that they believed higher mental processes could not be understood by examining such processes in final state, but only through examining them in their genesis. However, it would be fair to argue that Piaget's ideas present a picture of relative continuity when compared with Vygotsky, notwithstanding the proposed stages of development. This is because Vygotsky locates the point where early language starts to converge with thought as a point of radical discontinuity in development.

His view was that language and thought have separate origins, but on convergence, thought is qualitatively transformed by language. Initially, the child's pre-linguistic thought bears resemblance to primate thought, in that it has an unplanned and trial-and-error quality and is bound to the perceptual field. Language starts as social and communicative, but at a certain point, that is, precisely the point where it starts to transform thought, it separates into the social and egocentric forms. Very importantly, Vygotsky does not see this emergent egocentric form as artifactual, but rather as the very source of self-regulated thought. Initially, language is used vocally to regulate and plan action in egocentric speech, and later it goes to ground, so to speak, becoming silent speech or the tooling for thought. Vygotsky's inference as to the self-regulatory function of egocentric speech was based on clinical observations that the proportion of egocentric speech increases as task difficulty increases (Vygotsky, 1986; first published in Russian in 1934). Also, and very importantly, the child's self-regulation through egocentric speech is preceded by external regulation from others (parents, teachers and so forth) using speech. At the onset of egocentric speech, the child is beginning to assume the burden for its own cognitive regulation, and this is the first step on the path to higher mental processes which characterizes the mature adult, unbound to the perceptual field and therefore master of it. Thus regulation passes from the interpersonal plane to the intrapersonal plane with egocentric speech being the transitional means for this. Important also is that higher mental processes, characterized by deliberative and directed mental action, are not based in a developmental process of relatively solipsistic engagement with the external physical world, as Piaget's work would cast it, but rather are based in external regulation by the other. In this sense society is the antecedent of mind, rather than it's consequent.

It is this latter point on interpersonal regulation which is of critical importance, because it is the developmental means by which the cognitive requirements for planned, directed, self-regulated and agentic thought, are initially met; that is, they are met through the agency of the other before they are met through the agency of the self. This account of an externally-regulated process by Vygotsky explains how consciousness becomes socially and historically situated, and one does not have to be a full-blown ideological Marxist to appreciate the explanatory value of this. More than this, however, Vygotsky's further elaboration of this process of external regulation, through the notion of mediation and the zone of proximal development (ZPD; Vygotsky, 1986), provided rich theoretical space, substantially left vacant by Piaget, for pedagogy itself. The point here needs to be made carefully and studiously, because this is explicitly not to say that the work of Piaget has no relevance to pedagogy, but it is to say that the work of Vygotsky creates specific theoretical space for socially-regulated learning. In short, this creates a theoretical space for the teacher, and, very importantly, not so much as a content expert, but more so as an expert regulator, or shall we say pedagogue. Like so many important theoretical contributions, it sometimes seems that, in retrospect, the contribution was so obvious that it was hiding in plain sight, for if we turn to formal institutions of education, the entire rationale by which education occurs is social. Teachers, the formalized social others, are tasked with helping children or adults with learning. This tasking, under a Vygotskian framework, is principally one of mediation rather than knowledge transfer, and this is a critical point for active learning, and one to be returned to below. The cognition of the learner is mediated by the teacher, and such mediation moves to increasingly higher levels of abstraction as the child becomes an adult. In its highest and most mature expression, a lecturer stands in social communion with a

class of adult students at university and, through the vehicle of language in the traditional lecture, regulates or mediates the minds of those students into the problematic, procedures and rules of inference in a particular discipline. In this ideal capacity the lecturer is a pedagogue more than a content expert, and the process of mediation is active not passive, and for both the learner and the teacher.

The principle contribution of Vygotsky therefore, beyond providing a theoretical account of child development and the psychological means by which consciousness is historically and socially situated, was to open up rich and explicit theoretical space for pedagogy itself. Specifically, this space moved beyond empiricist- and behaviorist-born ideas of the unidirectional transfer of information under principles of reception and reinforcement, and into a space which accommodated both the agency of the learner and the agency of the more knowledgeable other in a compact of external regulation put in service to stewarding internal regulation. While Piaget's ideas were also constructivist, and certainly not empiricist- or behaviorist-born, and indeed they were also a critique of such, they did not open up this same theoretical space for pedagogy. This social aspect of Vygotsky's ideas was to place them uniquely in the intellectual and pedagogical milieu which followed the decline of behaviorism. What is also striking is that after the long curation of a non-empiricist account of psychological development and functioning during the dominance of empiricist-aligned behaviorism, and into the space for the cognitive revolution opened up by Chomsky's nativist or mentalist rebuttal of behaviorism, it was Vygotsky's version of constructivism which was to gain the ascendancy. The contemporary situation is one where the social constructivism aligned with the seminal work of Vygotsky has become the orthodoxy, for it is not possible to consider pedagogy without considering the role of other minds in the process of learning. All orthodoxies should be engaged with critically, and one should resist orthodoxies becoming received truth, but it is perhaps particularly the case with Vygotsky's ideas that their orthodoxy today is not mere historical circumstance or tendency to doctrine, but rather has been earned over the long run. In fact, their orthodoxy has probably been earned in spite of the circumstances, that is, the circumstances of the intellectual isolation of the 20<sup>th</sup> century Soviet Union, rather than because of them.

The question which remains, if we are to accept that social constructivism is orthodoxy for good reason, is how this theoretical framework can be brought to bear with respect to active learning. Of course, there are many ways, and this would not be the first paper to explore such, even if the case that active learning is over-described and undertheorized is strong. For the rest of the paper, however, as elaboration of how social constructivism can bring clarity where it is insufficient, it is worth turning to one particular issue specifically which is perpetually at the gates of the traditional lecture, and this is the claim that the traditional lecture is teacher-centered.

### **Social-Cultural Constructivism and the Traditional Lecture**

One of the most frequently heard criticisms of the traditional lecture, almost to the point of being incessant, is that it is "teacher-centered." A brief and informal search on the Internet will generate numerous hits with the lecture identified as a teacher-centered approach, and this includes electronic resources within the more scholarly literature. In fact, the general claim that the lecture is teacher-centered is so pervasive now that it begs for interrogation as a received truth. Of course, if "teacher-centered" means only that the teacher is physically located alone at the head of the class and doing most of the talking, then perhaps the case is made, and there

is nothing to interrogate, and perhaps also the term “teacher-fronted” might be more appropriate. However, reducing the teacher-centered claim for the lecture to the physical arrangement of the class and the relative quantity of speech between the teacher and students exposes the claim to charges of being both obvious and trivial. Of course, it is also quite evident that the charge of being teacher-centered is stronger than this and has an evaluative connotation. For example, the lecture is also frequently associated with other terms which may include: memorization, delivery of information, taking notes, presentation, teaching of facts and so forth. Furthermore, the evaluative component of “teacher-centeredness” is also quite plain in its oppositional framing to “learner-centeredness,” which has the clear and desirable insinuation of catering to the learner; and, self-evidently, education should cater to the learner. The literature on active learning is quite explicitly postured toward reigning in the teacher-centered approach in favor of the learner-centered approach, and while this seems entirely reasonable, the devil is in the details, and in what we take to be operational expressions of either of these approaches. To put the point more clearly and emphatically, we may ask the question: To what extent is the lecture format, which active learning scholarship clearly encourages leaning away from, an operational expression of teacher-centeredness? By closely examining this question, using social-constructivist theory, we might arrive at more substantive pedagogical commentary and indeed some surprising and perhaps non-conformist conclusions.

In beginning to answer the above question, it is worth bringing the issues down to earth, and there is no better way to do this than to think through a hypothetical, but very plausible and accessible, teaching scenario involving the lecture format. For the purposes of this an assumption needs to be made explicit. The lecture format is not, by definition, something which happens at university, though it is often popularly thought of this way. Rather, it represents teaching time where the teacher, who could be operating at any level of education (i.e. from primary education through to tertiary education), is placed in front of the class for a protracted period of time to do most of the talking and to receive most of the mental attention of the students. How protracted the period of time should be is matter of teacher judgment and is affected by student age and associated levels of attentional endurance. Also, because active learning, which tends to eschew such teacher-fronted posture, is now being promoted at all levels of education, we may begin by considering an elementary school scenario.

For the purposes of elaboration of the arguments pertinent to this paper and which follow, and for no other particular reason, let’s presume a fourth-year class at elementary school where a hypothetical math teacher is tasked with teaching students about decimal place value for the first time. Furthermore, let’s consider the activity of the hypothetical teacher through the theoretical lens of the ZPD and the notion of cognitive mediation briefly mentioned above. The ZPD represents the theoretical space where the learner is able to grasp new knowledge with the assistance of a more knowledgeable other (the teacher in this case), but not alone, and this assistance can be understood as coming in the form of mediation; that is, the teacher mediates the concept or task for the learner as the external regulator of the learners’ internal cognitive processes. The ZPD therefore could be thought of as the sweet spot for, or leading edge of, cognitive development and learning, and it is the place where growth and transformation will occur under mediation, but not otherwise. Of course, this leading edge is preceded by, or presumes, prior competence, and the ZPD, therefore, represents the area just beyond this competence, but not too far beyond it. In the case of teaching students about decimals numbers, therefore, the

teacher will not start with decimal arithmetic, because such operations presume an understanding of decimal place value. Rather the teacher will start with decimal place value in order to shift the ZPD, or leading edge of competence, to the point where decimal arithmetic can be successfully mediated. Also, the teacher will know that in order to understand decimal place value, the students will already have to have grasped both whole-number place value and fractional numbers. Understanding fractional numbers serves as the foundation for explaining that decimals represent a special case of fractional numbers, having base-ten denominators, and that values get smaller as one moves further away from the decimal point, which may be the more challenging point for students to grasp given that the opposite holds true for whole number places; and of course, it is the more challenging places for students where mediation is most required. Naturally, the teacher will have some assessment of how well the students grasp such antecedent concepts as whole-number place value and fractional numbers, and he or she will typically preamble the lecture on decimal place value with an abbreviated re-visitation to these antecedent concepts. This abbreviated re-visitation prior to the main instructional point of the lecture could be thought of as activating the ZPD for mediation of new knowledge. With this behind the teacher, he or she will then present decimals on the white board with assisted notation and other heuristics indicating that the first place after the decimal point is equal to tenths, the second hundredths and so on; with such notation then being used to leverage the point that values decrease, rather than increase, in size as the place value moves further from the decimal point. Of course, after some time, and after concluding that the majority of students have some declarative grasp of decimal place value, the teacher will want to move on to exercises and activities which will help to externalize and proceduralize the new knowledge, and assist with identifying students whose ZPD might not have been sufficiently positioned for what was being mediated, and of course these exercises and activities will not fall under the lecture format.

If we examine this above walk-through of a lecture on decimal place value, the first question to ask is what exactly is teacher-centered about it? Arguably, absolutely nothing at all about it is teacher-centered. What we notice is a process that is almost entirely learner-centered, and this in spite of the teacher having stood in front of the class and done the majority of the talking. The teacher has used expert knowledge of other minds, namely, the minds of the learners, to situate his or her intervention in precisely a place which is appropriate for them. This involved 1) an overall and expert understanding of the sequence of conceptual building blocks for mathematical knowledge, 2) assessment of where students are in this sequence, 3) a lecture situated right at the front-end of where students are in the sequence (in their ZPD), and 4) a lecture which mediates the new knowledge in terms of past knowledge. The second question about the above scenario would concern whether it involves the mere transfer of information or facts, and again the answer would almost certainly have to be no. The knowledge is conceptual and operational, and as such has to be mediated for learners rather than transferred to learners. From the learners' point of view, there would have been nothing in the lecture commensurate with the rote memorization frequently, and regrettably, associated with lecturing. In fact, the whole process is a case for mental activity rather than passivity. More importantly, despite the absence of group-work and so forth, it is a case for socially-situated learning because there is a communion between the mind of the teacher and the learners under the rationale of mediating new knowledge for the learners. What else could it be but social learning when one mind picks up another and mediates it through a path to understanding of operational

concepts? And yet the lecture format is so often counterpoised to social learning, when in fact, it should be construed as simply a special case of social learning.

As stated earlier, the answer to the question about whether the lecture format is teacher-centered is a contingent one. The case just elaborated was presented to exemplify how the lecture format is not necessarily teacher-centered, and sometimes quite to the contrary, it is actually quintessentially learner-centered. However, it would not be taxing to summon up scenarios for lectures where teacher-centeredness features more prominently and learner-centeredness less so, but again this has nothing to do with where the teacher stands and the students sit. Off-hand, we may just want to think of a history lecture where the teacher has students take notes from a monolog of historical events which is largely descriptive and chronological rather than interpretive and critical. Such a lecture would align more strongly with notions of information transfer and rote learning and so forth. However, the critical point is that to the extent that there is a problem with the lecture format, it relates to failure of execution rather than to the format itself, and of course this applies to all other formats for teaching as well. Thus it is a category error to confuse the execution of any format of learning with the format itself. Furthermore, to the extent that the lecture is criticized for focusing on the internalization of knowledge rather than the externalization of knowledge, this criticism is also misguided because internalization of knowledge precedes externalization, and both have equal claim to being part of active learning as necessary components. It is just one more form of reductionism to associate externalization, at the expense internalization, with active learning. Most importantly, however, it is through theorization, in this case through the lens of social constructivism, that we come to critically understand how it is in the execution that the lecture format is either served or disserved as a special case of socially-situated active learning.

## Conclusion

It is clear that a more critical approach to active learning, and indeed to the critique that active learning itself claims to mount with respect to the traditional lecture format, is required. To this end, there is no better tooling than theory. Definitions do not substitute for theory because they are descriptive and therefore lack conceptual leverage and critical force. As the above scenario illustrates, one cannot adjudicate the lecture format as teacher-centered for the trivial fact that the teacher fronts the class. Descriptive accounts of active learning counterpoised to the traditional lecture format will most definitely lead to reductionisms which do not serve positive change. A deeper understanding of what is actually going on within the communion of minds in a lecture is required; and indeed this goes for all other teaching formats too. To the extent that what is going on in any particular traditional lecture is more mediational rather than transferal, more operational rather than factual, more interpretive than descriptive, and more explicitly located around the ZPD of the learner than the idiosyncratic preferences of the teacher, the closer such a lecture will be to an expression of, yes, dare it be said, active learning. Active learning is about how we learn, and not where we stand or sit, and who talks or listens. If it is to gain real critical force as a theoretically-grounded notion, and if it is to survive the twin dangers of being sensationalized and vulgarized, then above all it must be theorized. It is imperative that such theorization should accommodate the sociality of learning; that is, the property of learning which is active and mediational rather than passive and transferal, and this is associated with the Vygotskian claim that learning is socially

situated. While nativist and empiricist theories have something to offer when properly and critically viewed, and while cognitive constructivism does too, none of them offer quite the explicit theoretical space that social constructivism does to think about the teacher and the learner in social communion for the benefit of learning. Not only is the communion between the teacher and the learner theoretically understandable through social constructivism, but so too is the place of the teacher as pedagogical expert rather than just content expert; which is another distinction destined to be the first victim in any vulgarization of active learning.

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