Group coursework:

"Concepts and Empirical Results in Education"

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Learning as Participation (Not Acquisition)

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1. Introduction

1.1 Why is it important to investigate the concept of learning?

The process of learning is highly significant as it shapes the **knowledge-driven activities** we undertake every day (Paavola & Hakkarainen, 2005). Accordingly, learning has great implications in many aspects of our lives and is an integral part of people's **economic** success as well as their **social integration** (Kennedy, 1997). It is, therefore, crucial to understand the underpinnings of effective learning and to successfully apply them within the educational context where people often develop different skills and abilities for the first time.

Commonly, learning is defined as the **change** in people's perspective and understanding (Sfard, 2009). However, the process behind this transition has been described in different

ways in the past few decades (Jonassen & Land, 2012), which brings uncertainty over the practicality of the learning approaches undertaken within the academic settings. Thus, the aim of this wiki page is to outline and compare two conceptions of learning, namely (1) learning as knowledge ***acquisition*** and (2) learning as ***participation***. Additionally, empirical findings related to both of these frameworks will be presented and the balance of evidence will be evaluated.

1.2 Theoretical background

1.2.1 Acquisition

Traditionally, learning has been viewed as knowledge ***acquisition*** with concepts and ideas representing **established** building blocks of knowledge (Wenger, 1998). Regarding this, many scholars, such as Piaget (1977), advocated that knowledge is developed and attained by individual experience, which has been known as *the* ***acquisition metaphor***. It suggests that individuals have a knowledge **capacity** to be filled and that, once acquired, knowledge **belongs** to the learner (Bereiter, 2002). This implies some form of ownership of one's accumulated ideas, which is further associated with improvement in people's skills and abilities (Lave & Wenger, 1991). Therefore, knowledge structures that are logically organized within one's own mind are seen as the prerequisite of intellectual activity.

1.2.1.1 Limitations of the acquisition metaphor

The traditional cognitive approach, which represents a significant part of the acquisition wave, emphasized this idea (Gardner, 1985; Neisser, 1976), but often undermined the importance of the **environment** and the **context** within which learning takes place (Fodor, 1981). This leads to the so called ***learning paradox****,* initially formulated by Plato in his dialogue 'Meno' (Nehamas, 1985; Cobb, Yackel, Wood, 1991). More precisely, Plato questioned whether it is possible to individually acquire knowledge which does not already belong to the learner and concluded: 'Learning **new** things is inherently impossible'. The *acquisition metaphor* has been further challenged by the fact that people

are able to 'develop' knowledge that is in line with that of others, which is not explained by the acquisition hypothesis (Sfard, 1998). Additionally, Blackler (2004) argued against the idea of embrained knowledge as he believed that learning is socially **constructed**. Similarly, Chiva and Alegre (2005) speculated that learning and knowing are **continuous** processes and, hence, they cannot be predefined. Collectively, this suggests that the acquisition metaphor is an insufficient theoretical framework for explaining the process of learning.

1.2.2 Participation

In line with this criticism, over the last decades there has been a shift in conceptions of what the learning process constitutes (Murphy & McCormick, 2008). This epistemological change was greatly inspired by the work of Vygotsky (1978), who proposed a sociocultural approach to mental development. Additionally, Bandura's social cognitive theory (1989) and the view of learning as a context-based process (e.g., McLellan, 1996) affirmed the idea that learning is embedded within the social and cultural situation and further suggested that the *acquisition metaphor* cannot fully encompass the process of knowledge transformation. The idea that learning is a **collective process** is known as *the participation metaphor* (Sfard, 1998; Wenger, 1998). While the *acquisition metaphor* argued for the constant state of 'having knowledge', this framework emphasized that the processes and the actions involved in 'knowing' are more important (Lave & Wenger, 1991).

1.2.2.1 The main components of the participatory framework

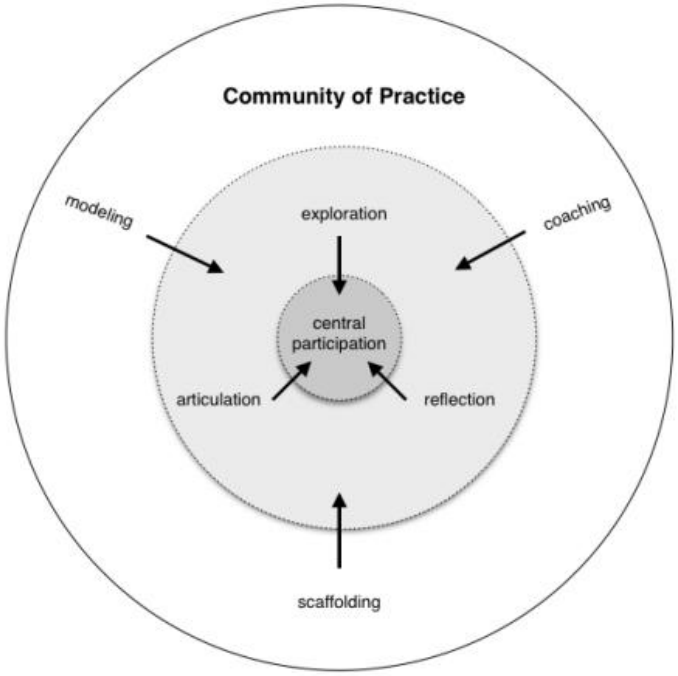
Accordingly, learning is seen as the **participation in different cultural and social practices** which involves constant interaction which modifies one's cognitive processes and that leads to the **enhancement of community**. The proponents of the *participation metaphor* speculated that learning cannot exist on its own and within individual minds as it incorporates one's involvement in **social situations**; hence, the **context** within which learning happens is perceived as an integral part of this process (Paavola & Hakkarainen, 2005). As a result, the learner is seen as an **actor** in particular activities rather than as being independent from the environment within which learning takes place (Solomon & Perkins, 1998).

Table1: The key theoretical components of the acquisition and the participation metaphors. Table taken from Sfard (1998). 'On two metaphors for learning and the danger of choosing just one'. Educational researcher. March, 2015 via Elsevier (http://www.elsevier.com/)

The Metaphorical Mappings

Acquisition metaphor		Participation metaphor
Individual enrichment	Goal of learning	Community building
Acquisition of something	Learning	Becoming a participant
Recipient (consumer), (re-)constructor	Student	Peripheral participant, apprentice
Provider, facilitator, mediator	Teacher	Expert participant, preserver of practice/discourse
Property, possession, commodity (individual, public)	Knowledge, concept	Aspect of practice/discourse/activity
Having, possessing	Knowing	Belonging, participating, communicating

1.2.2.2 Lave and Wenger's framework of participatory learning



'It is one thing to learn about other people, but another thing to learn something bfrom them' (Catania, 1998, p. 227)

An influential theoretical framework supporting the idea of learning as participation is Lave and Wenger's (1991) ***situated learning hypothesis***. It proposed that learning is embedded within the immediate context in which it takes place, and that it is unintentional rather than deliberate. This process became known as the **'legitimate peripheral participation'**. In particular, individuals that are **novices** are argued to change their position within the particular community they are part of, from its periphery to its centre, when they are more involved in the community's culture; subsequently, they become **experts**. Brown, Collins and Duguid (1989) also highlighted the idea of cognitive apprenticeship. They speculated that it 'supports learning in a domain by enabling

students to acquire, develop and use cognitive tools' and that learning takes place 'through collaborative social interaction and the social construction of knowledge'.

Similarly, Lave and Wenger viewed **social participation** and **integration** as important aspects of situated learning because people become involved in a '**community of practice',** which presents the behaviours and beliefs to be developed by the learner. Community of practice can take place both offline (in face-to-face context) and online (e.g., computer-based discussions) (Kiezmann et al., 2013). Evidently, a strength of the theory is that it takes into account a wide spectrum of situations that can influence people's learning processes. However, it should be noted that this framework specifically targeted learning within occupational settings (Wenger, 1998) and, thus, may not be fully applicable to the rather different educational context (Boylan, 2012).

1.2.2.3 Constructivists' view of learning

Constructivism is another theoretical framework that focused on the process of knowledge transmission (Eddy, 2004). According to its proponents, learning is the construction of knowledge which is based on learners' previous **experience** as well as on their **privately** developed ideas and concepts (Koohang, Riley & Smith, 2009). Therefore, the conceptions of learning outlined by pure constructivists are very much in line with the acquisition metaphor.

Conversely, ***social constructivism*** confirmed the ideas behind participatory learning and emphasized the importance of the **cultural background** of learners and their **communication** with knowledgeable members of the community such as teachers and parents (Wertsch, 1997; Burr, 2002). Social constructivists believed that the exchange of perspectives and opinions between individuals (also known as ***collaborative elaboration***; Meter & Stevens, 2000) leads to higher understanding that cannot be developed alone (Greeno, 1996). In regard to this, Vygotsky (1978, p. 30) categorized the individually developed knowledge as secondary and, hence, as being shaped by people's engagement in social interaction (Wertsch & Bivens, 1993). Rogoff et al. (1995) also noted that knowledge development is inherently social and that it cannot happen independently from one's culture and its practices. Overall, social constructivists argued that the main purpose of learning is to develop knowledge in particular context in order to deepen the understanding of the learner (Morton, 2012).

1.2.2.4 The participation metaphors as a new perspective on learning

Ultimately, as Sfard (2009) argued, the participatory approach to learning appears to overcome the criticism targeting the *acquisition metaphor*. It has been highly influential as it has served as a catalyst for research on the benefits of engagement within the educational settings (Daniels, 2005). Nowadays, convinced of the benefits that participation brings, researchers are more interested in finding methods for widening participation within the academic context (Chowdry, Crawford, Dearden, Goodman & Vignoles, 2013). Nevertheless, before making any clear-cut conclusions regarding the usefulness of the participatory learning model, it is important to consider the criticism directed at it as well as the evidence regarding the two presented learning approaches; subsequently, their usefulness when applied to the educational context will be also evaluated.

1.2.2.5 Limitations of the participatory metaphor

Apart from being a useful theoretical framework, the idea of participatory learning has several theoretical weaknesses that have been previously outlined. For example, Sfard (2009) has pointed out that the notion of knowledge transfer cannot be adapted within the learning-as-participation model. More precisely, as the idea of transferring implies applying the same knowledge to different contexts, it is in contrast to the belief that knowledge is not generalizable and entity-based. Sfard (1998) argued that while the context within which learning takes place is important, it is inevitably the case that some form of knowledge is similar across situations. Therefore, although the participation metaphor overcomes the caveats of the learning-as-acquisition model, it is hard to avoid using the acquisition language when talking about participatory learning (Greeno, 1997).

It is evident, then, that while most learning theories can be viewed as either acquisition-related or participation-oriented, the proposed models of participatory learning cannot be fully distinguished from information-based learning. Paavola, Lipponen and Hakkarainen (2004) further reinforced this idea by suggesting that neither of the two metaphors is sufficient for addressing the deliberate generation of novel ideas on its own: the acquisition metaphor argues for predefined knowledge, whereas the participatory learning framework is focused on the development of community knowledge without it being deliberate (Paavola & Hakkarainen, 2005). Consequently, an approach to learning that

combines the elements of both acquisition and participation, called *the knowledge-creation metaphor,* was proposed (Moen, Morch & Paavola, 2012, p. 1).

Additionally, Solomon and Perkins (1998) noted that the participation-oriented conceptions of learning challenge the development of school curriculum activities as it is hard to create learning objectives for courses based on effective participation only. Subsequently, the development of appropriate knowledge evaluation tools which are related to the participation metaphor is problematic. Therefore, while great body of up-to-date literature focuses on ways to increase participation within the educational context (Fleming & Grace, 2014; Lane, 2012; Olsson & Persson Slumpi, 2014), it is unsurprising that the assessment types chosen by many educators is based on the acquisition model of learning which is highly criticized (Falchokov, 2013, p. 38). On balance, the discussed theoretical conceptions and weakness of the learning-as-acquisition hypothesis show that the educational system will benefit from having a multifaceted approach to learning.

2. A quick comprehensive reference

Anna **Sfard** is one of the main scholars investigating the two learning metaphors. Her paper from 2009 provides a brief **theoretical overview** which will give you a more in-depth presentation of the topic.

Moving Between Discourses: From Learning-As-Acquisition To Learning-As-Participation

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Abstract. In this paper I address the question of how to talk about learning so as to be able to cope with at least some of the longstanding quandaries and to arrive at new insights. After a very brief historical review, I concentrate on two basic metaphors for learning in which current educational research seems to be grounded: the metaphors of learning-as-acquisition and of learning-as-participation. After stating the importance of both of these approaches and arguing that researches should be adjusting their leading metaphors to the questions they ask, I present my own choice: a brand of participationist discourse which is grounded in the vision of thinking as a form of communication and of physics and mathematics as types of discourses. The usefulness of the proposed way of talking about learning is then illustrated with the help of empirical materials taken from my recent study on a 7th grade class just introduced to *negative numbers*.

A good empirical research article investigating the effect of participation on student performance is the one by **Carini, Kuh and Clein (2006)**, in which they show that the critical thinking and the overall academic performance of students is positively, albeit weakly, associated with their participation within the educational contexts.

This study examines (1) the extent to which student engagement is associated with experimental and traditional measures of academic performance, (2) whether the relationships between engagement and academic performance are conditional, and (3) whether institutions differ in terms of their ability to convert student engagement into academic performance. The sample consisted of 1058 students at 14 four-year colleges and universities that completed several instruments during 2002. Many measures of student engagement were linked positively with such desirable learning outcomes as critical thinking and grades, although most of the relationships were weak in strength. The results suggest that the lowest-ability students benefit more from engagement than classmates, first-year students and seniors convert different forms of engagement into academic achievement, and certain institutions more effectively convert student engagement into higher performance on critical thinking tests.

3. Bridging between theory and practice

Both research and theoretical reviews of the topic of participation lead the reader to some important practical implications. Assuming that learning can be improved through participation approaches, some of the crucial features mentioned within the theoretical literature can help educators make full use of the learning processes. For example, some of the important factors suggested by previous research are the feeling of being part of a group, the close relations with others and the enhancement of people's willingness to share experiences (Filstad, 1998). Furthermore, as Lave & Wenger already suggested in the 1990s, legitimacy and peripherality are other important conditions to be considered when applying the theory into practice. Graff (2003) also described the benefits of belonging to a group, the feelings of acceptance, trust and cohesion, the recognition of a membership and the social interaction when taking part in participatory learning. However, it should be noted that the degree to which these constructs are perceived depends on the cognitive style of the learner.

Moreover, participation is about the newcomer's observing, listening and discussing in a proactive way (Filstad, 1998). An interesting finding repeatedly shown in the literature is the fact that participation with a more experienced person seem to be more fruitful than interaction with a person who is on the same or lower level of knowledge and practice. Nevertheless, the role of student-to-student interaction should not be underestimated. Additionally, there are other important implications for adult learners at the workplace. Because they are less likely to engage in a learning process, in which they are unable to see the relevance for their actual life, the combination of practical workplace learning and educational learning has to be taken under special consideration (Illeris, 2003). .

Johansson and Sandberg (2010) took a descriptive approach in an exploratory study and asked 112 preschool teachers and students about their understanding of the concepts of learning and participation. The study used the critical-incident technique and found that learning was perceived as both knowledge acquisition and active interaction with others. However, more experienced teachers found teacher-student interaction more important than the interaction between students. Four categories of participation features came up in this study: being part of a group, listening, influence and being involved.

Lambson (2010) used Lave & Wenger's communities of practice framework to examine the change from peripheral participation to central participation in a group of three novice teachers. They participated in a study group with experienced teachers who mediated legitimacy and peripherality. The initial feelings of pressure, discomfort and insecurity and the very limited contributions to the group sessions were described to turn into more confident feelings and increased participation. The participants shifted from an outer circle of participation to an inner circle of enhanced participation. Moreover, a gradual adaptation to the culture, way of communication and practices of the group over the long-term engagement was observed.

One form of participating in the classroom is having debates and discussions. Studies suggest that these have a positive influence on curricular involvement and increased general course participation and engagement (Coogan & Pawson, 2008). Kennedy (2007) found debates to be advantageous, including greater course material understanding, enhanced ability to share opinions, greater mastery of the subject and improvements in critical thinking and verbal skills. King (1990) suggested that college students who asked more critical questions during a guided peer reciprocal questioning task were better able to provide explanations and had higher

academic performance. Johnson, Johnson and Stanne (2000) performed a meta-analysis and found that all cooperative learning methods have a significant positive impact on achievement. They investigated 164 studies which suggested that learning together was more beneficial in comparison to individual or competitive learning. Additionally, Carini, Kuh and Klein (2006) found participation had a positive effect on students' grades and achievements. The data also implied that students with lower abilities might profit more by engaging within the classroom.

3.1 The role of participation in e-learning

The special features of e-learning and participation are based on the lack of close interaction. However, it poses the question of whether in fact a community of practice is present under these circumstances. Nevertheless, Rovai's study (2002) showed that e-learners indeed felt a sense of community and that crucial features such as interaction, shared goals and values are important. An advantage of online participation is that students have more time to express themselves in comparison to face-to-face interactions.

In their survey, Fredericksen, Picket, Shea, Pelz and Swan (2000) indicated the importance of **collaboration** and participation for online learning. By asking 1406 university online learners, they showed that **interaction** with the teachers, between classmates and participation level were most crucial for perceived learning effectiveness. Furthermore, Hilzt, Coppola, Rotter, Turoff and Benbunan-Fich (2000), measured both **perceived** and **actual** effectiveness. They based their study on 26 online university courses, and confirmed that participation in collaborative or group learning is associated with better grades when compared to traditional settings. Nevertheless, the authors pointed out that when comparing traditional classroom settings to a distant correspondence course, students' results were poorer. Collectively, these findings show the usefulness of the participatory learning framework, but challenge their generalizability.

Additionally, Davies and Graff (2005) related the activity on two distinct online interaction platforms of 122 first year students with their marks at the end of the year. The results showed that people who failed were the ones with the **lowest platform activity** and vice versa.

Nevertheless, the degree of participation was not associated with medium and high marks. This finding raises the question of whether the obtained outcome could be explained by the mere quantitative participation online. Furthermore, Morris, Finnegan and Sz-Shyan (2005) showed that activity on online learning and interaction platforms is not the only important factor to predict learning outcomes. The authors looked at 354 students' platform activity regarding both frequency variables (number of discussion postings) and duration variables (time spent looking at content pages) and their final marks. The findings showed that **both** quantitative and qualitative measures were important for predicting learning outcomes. Moreover, Weisskirch and Milburn (2003) analysed 3125 interactive platforms and showed that better exam marks were related to a higher number of tutor-directed postings. However, grades were not associated with the number of student-to-student postings.On balance, the reviewed evidence suggests that while the students' online participation seems to be implicated in students performance, its benefits are not clear-cut and directly related to students' educational attainment.

3.2 Participation at the workplace

Previous research has outlined several work-based activities as key methods for which employees learn through their work; namely, receiving guidance from and interacting with other co-workers and perceiving the workplace as a social environment (Billett, 1999). The role of learning through participation in the context of work becomes apparent among part-time, contractual or home-based employees. Because they lack such opportunities, they often struggle to maintain the same skill level as fully employed co-workers. Consequently, this may influence part-time employees in a negative way and hinder career aspirations (Tam, 1997).

Billett (2001) examined 5 organizations in order to investigate how individuals learn in the context of work through participation and the role of guidance. The author found that the degree to which workers interact with and observe more experienced co-workers influences the quality of their learning outcomes. Filstad collected the experiences of 30 newly graduated science students from their first jobs. The qualitative interview stressed the perceived importance of social practice, observations and participation when performing in a novel work environment.

3.3 Real-life examples

Evidently, previous literature has provided a number of empirical examples of the application of the two learning metaphors. Drawing on your present knowledge of the topic, try to guess, alone and in a group, which approaches to learning have been applied within the following three examples, and whether they incorporate only one of the metaphors investigated or both of them:

3.3.1 Chan, Frydenberg, & Lee, 2007:

First-year undergraduate students, studying in Charles Sturt University and Bentley College, were asked to work in teams of people from both institution. Each team had to collaboratively produce a brief podcast, which had to be recorded over Skype (*Skypecast)*. The project involved discussions over issues on technology and culture implemented within the curricula at both higher education institutions. The task outcomes were to overcome the problems associated with cross-cultural communication as well as the development of teamwork skills from working with people whom were not met face-to-face.

3.3.2 *Frydenberg, 2006:*

Students at Bentley College (USA) who were enrolled in the IT Intensive course were required to purchase Pocket PCs instead of textbooks, which would provide them with hands-on, learner-centered type of learning. Participants were allocated to pairs or groups and were asked to plan and create vodcasts. All groups had to produce vodcasts on one of the course topics that were to be shared with the rest of the class. This was an innovative form of peer teaching incorporating two purposes: (1) learning the subject matter through the production of material for their coursemates and (2) exercising and implementing IT skills that are in line with the aims of the course.

3.3.3. *Lee, Chan, & McLoughlin, 2006:*

At Charles Sturt University, second-year students produced brief, three-to-five-minute radio-style podcasts that were to be listened by first-year students enrolled in a subject that the participants had already successfully completed. The second-years had to brainstorm script ideas, as well as

to scriptwrite, to edit and to record the podcasts without being provided with guidance by their teacher. The objectives of the project were to enhance a variety of technical skills, to develop transferable attributes such as teamwork and presentation skills as well as to apply their knowledge of the course they studied. Students were able to extend and adapt content for a peer audience by engaging in group peer review and critique of podcast scripts.

4. Implications

Both the research and the more theoretical reviews on the topic of participation lead the reader to some important practical implications. Assuming that learning can be improved through participation approaches, some of the crucial features mentioned within the theoretical literature can help to educators to make full use of the learning process. For example, some of the important factors suggested by previous research are the feeling of being part of a group, the close relations with others and the enhancement of people's willingness to share experiences (Filstad). Furthermore, as Lave & Wenger already suggested in the 1990s, legitimacy and peripherality are other important conditions to be considered when applying the theory into practice. Graff (2003) also described the benefits of belonging to a group, the feelings of acceptance, trust and cohesion, the recognition of a membership and the social interaction when taking part in participatory learning. However, it should be noted that the degree to which these constructs are perceived depends on cognitive style of the learner.

Additionally, participation is about the newcomer's observing, listening and discussing in a proactive way (Filstad). An interesting finding, which is repeatedly shown in the literature, then, is the fact that participation with a more experienced person seem to be more fruitful than interaction with a person who is on the same or lower level of knowledge and practice. Nevertheless, the role of student-to-student interaction should not be underestimated. There are as well important implications for adult learners at workplaces: as they are less likely to engage in a learning process, in which they are unable to see the relevance for their actual life, the combination of practical workplace learning and educational learning has to be taken under special consideration (Illeris, 2003).

5. Research critique

A general critique on theoretical articles in the field of learning through participation is the fact that many authors take the benefits of one's engagement for granted (Hrastinski, 2009). Additionally, great body of empirical research is only descriptive and does not measure performance or success. Regarding this, the participation approach is mentioned or used very often in previous literature, but without giving any information about teachers' actual performance in their classrooms. This is especially the case when concerning teachers' experiences or their training. Moreover, one can find many qualitative studies with obscure and non-transparent evaluation practices which further limits the validity and the generalizability of the obtained results and, thus, conclusions.

A major drawback in the study of human learning is the fragmentation of the field. Sfard (1998) used two metaphors to explain and combine main ideas behind the existing research paradigms about learning. It was argued that both acquisition metaphor and participation metaphor are inherent part of learning and it is not possible to explain learning unless research considered both metaphors. These two umbrella terms sparkled great wave of research which aimed to account for both metaphors. However despite Sfard's appeal for the research to consider both types of learning, the distinction between acquisition-based and participation-based learning is still made when classroom activities are designed.

In a recent qualitative study Tarchi & Pinto (2015) two classrooms were compared using only acquisition-based or participation-based activities. They hypothesized that children in a participation-based drawing class will initiate more discourses and, in general, participate in more interactive situations. However, their results did not find significant differences in the quality of interactive situations and engagement. Such findings lead to the question of whether implications of certain learning tasks are generalizable to learning, as a whole. Some tasks require more participation than others, even if they are conducted in environments where acquisition instructions are prevalent. Qualitative studies are needed in order to understand what exactly happens differently in a classroom designed mostly following one of the two learning metaphors. However, quantitative studies are needed to support feedback given from teachers and students with objective measurements of academic performance.

Despite the amount of quantitative studies in the field, or perhaps due to the amount and variability of accounts on learning and the methods stemming from different theoretical approaches, it is not possible to find a specific method which works best. Moreover, learning methods should be considered with regards to the specific learning environments they will be used in. For instance, a cooperative learning method might not necessarily improve school performance if a school culture is based on competition already (Johnson, Johnson & Stanne, 2000). Research suggests that the effectiveness of participation-based interventions depends on factors such as shared goals and conscientiousness (Slavin, 1994). Another potential limitation of the participation-based approaches is that studies often fail to take into account that learning does not only occur due to a single process or experience, but it is a result of different sources, used in different ways (Carini, Kuh & Klein, 2006).

6. Conclusion

Overall, this wiki page discussed two main theoretical approaches to learning; namely, learning as acquisition and learning as participation. Many scholars have previously criticized the traditional information-based view of learning due to its insufficient explanation of certain processes such as the development of new knowledge. Theoretically, it has been speculated that the participation metaphor overcomes these gaps, adding a new and richer perspective on the process of learning. Previous research demonstrated a number of benefits associated with being more engaged in the classroom, online and within one's own environment. However, it appears that the positive effect of participation is not universal and, therefore, this approach to learning does not remain unchallenged.

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