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Quality of Education with the Focus of Faculty Competencies, Research Leads Student Cognitive and Collaborative Learning Techniques in the Class Room

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ABSTRACT

In this paper the faculty competencies, research leads student cognitive and collaborative learning techniques in the class room; supports to meet the current generation and future generation requirements with higher impact with the student development in educational institutions. The global idea of collaborative learning techniques in many ways interlinked with the quality of education and the community development. This will go a long way in the "designing of an optimal professional teaching mechanism" for colleges and Universities of Afar region, Ethiopia. This leads to contribute to student development while improving the knowledge as well as of the local community and society at large. The results indicate that collaborative learning is a cognitively and emotionally challenging learning process. The way in which group members share and develop their ideas depends on how actively they monitor their own and each other's evolving understanding. However, monitoring cognitive activities as a group is only one part of effective and enjoyable learning. Methodologically, this study provides several process-oriented analysis schemas for analyzing cognitive activities within collaborative learning. Practically, this study offers teachers and educational professionals' ideas for the design of collaborative learning environments. Further research is, however, needed to explore the collaborative learning characteristics of well- and poorly functioning groups.

Keywords: Faculty, Student, Collaborative Learning Techniques, Cognitive Activities, Quality of Education, Community and Research.

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1. INTRODUTION

The quality and value of an undergraduate education in the past decade received, and continues to receive, scrutiny by various stakeholders associated with the higher education community. Much of the energy surrounding the undergraduate experience and student learning was placed on the two major responsibilities of faculty, teaching and research (Fairweather, 1996, 2002; Marsh & Hattie, 2002). The regulation of time allocated to these two roles was quickly becoming one of the most salient issues in higher education. Unfortunately, much of the debate about the nature of faculty work was shrouded in myth, opinion, and conjecture (Fairweather, 2002). Myths, such as a faculty member being highly involved in teaching, engages students in the undergraduate experience resulting in greater student learning gains were important to debunk or substantiate. As a result, assessing the impact that faculty behaviors and interactions with students in the classroom have on the undergraduate classroom experience was ripe for examination in the current study. Conducting empirical research that focus on faculty behaviors and interactions with students in the classroom will advance the literature on the role faculty play in student learning.

In recent years the amount of research focusing on how thinking can be developed by systematic activities has grown rapidly, as cognitively based research on how learning is connected to successful thinking and to creativity. The brain uses two systems to solve problems and to learn (Björklund, 2008; Kahneman, 2011). An explicit system helps us to analyze information and remember things while we work or solve problems (Klingberg, 2011). An implicit system stores data from experiences on a subconscious level (Björklund, 2008). People tend to use the more impulsive and intuitive implicit system to avoid the effort of using the explicit system when confronted with tasks demanding logical thinking (Kahneman, 2011). However, the implicit memory is more sustainable and will be reliable if the bank of implicit memories is large (Björklund, 2008). Complex learning takes longer and requires incubation, pauses from learning.

The approaches that faculty take to effective educational practices (Kezar, 1999). Kuh (2001) and Pascarella (2001) posited that a quality undergraduate education was one that engaged students in proven good educational practices (e.g., focus and quality of undergraduate teaching, interactions with faculty and peers, and involvement in coursework) and that added value to student learning. Studying self-reported student engagement behaviors was important and a necessary step in measuring the quality of undergraduate education; yet, it was equally important to understand and evaluate what faculty practices influenced student learning gains (Wingspread Report, 1993). A good deal was known about how faculty spends their time, what instructional methods they used, and satisfaction with teaching (Menges, 2000).

Research on good thinkers or experts within their field, for example scientists and artists show that experts have a rich experience and understanding of their subject and

its established knowledge base (Björklund, 2008; Willingham, 2009). Critical thinking includes elements of creativity and independence or it would not be possible to make the connections needed to make evaluating and analyzing conclusions. Specifically, examine the context created by faculty collaborative learning techniques and its relationship to student engagement with cognitive activities in the class room, student perceptions of society, and student attitude.

The objective of the research is to provide quality of education through the student's cognitive activities and to collaborative learning techniques with faculty competencies and research supports the development of the students and community

2. REVIEW OF LITERATURE

Barr and Tagg (1995) suggested a paradigm shift to improve the quality of undergraduate education (i.e., from providing instruction to students, to producing student learning) that would create learning centered campuses and maximize students' learning. However, creating a student-centered campus necessitates knowing how students learn, understanding barriers to student learning, and developing classroom techniques that promote learning among college students (Stage, Muller, Kinzie, & Simmons, 1998).

Astin's (1993) model of inputs-environments-outcomes assessed the impacts that various institutional practices and environmental experiences (e.g., faculty-student contact, pedagogical techniques) have on student outcomes (e.g., student engagement and student learning).

Collaborative learning as a special form of learning and interaction has been theoretically operationalized, for example, using terms of knowledge acquisition versus participation (Sfard 1998), knowledge building (Scardamalia & Bereiter 2003), knowledge creation (Paavola et al. 2004) and as a process supported by technology (i.e.CSCL as discussed in Stahl 2006, Stahl et al. 2006). All these approaches and descriptive metaphors aim to target active and dynamic processes within the group and the community (Crook 2000).

3. CONCEPTUAL FRAME WORK

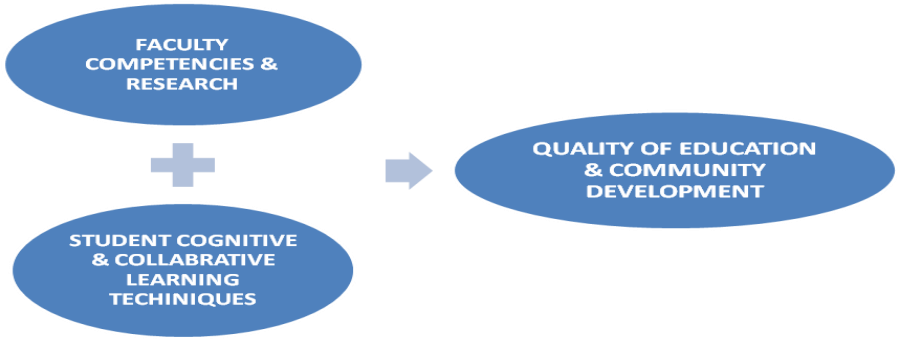


Fig.1 Conceptualization of Quality of Education

4. COLLABORATIVE LEARNING

The study of group learning began long before studies of collaborative learning or computer-supported collaborative learning (CSCL). Research over small groups has a long history, for example within social psychology. To differentiate collaborative learning from its earlier investigations of group learning, it is useful to follow Dillenbourg's (1999) distinction between cooperative and collaborative learning. The often cited difference between these concepts is in the division of labour, where the cooperative form of learning interaction is characterized as the division of sub-tasks and responsibilities, whereas collaborative learning entails shared learning activities (Roschelle & Teasley 1995).

"Collaborative learning" is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together. Usually, students are working in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product. Collaborative learning activities vary widely, but most center on students' exploration or application of the course material, not simply the teacher's presentation or explication of it.

5. COLLABORATIVE LEARNING APPROACHES

Collaborative learning covers a broad territory of approaches with wide variability in the amount of in-class or out-of-class time built around group work. Collaborative activities can range from classroom discussions interspersed with short lectures, through entire class periods, to study on research teams that last a whole term or year. The goals and processes of collaborative activities also vary widely. Some faculty members design small group work around specific sequential steps, or tightly structured tasks. Others prefer a more spontaneous agenda developing out of student interests or questions. In some collaborative learning settings, the students' task is to create a clearly delineated product; in others, the task is not to produce a product, but rather to participate in a process, an exercise of responding to each other's work or engaging in analysis and meaning-making.

5.1 Cooperative Learning

Cooperative learning represents the most carefully structured end of the collaborative learning continuum. Defined as "the instructional use of small groups so that students work together to maximize their own and each other's learning" (Johnson et al. 1990), cooperative learning is based on the social interdependence theories. In cooperative learning, the development of interpersonal skills is as important as the learning itself. The development of social skills in group work-learning to cooperate – is key to high quality group work. Many cooperative learning tasks are put to students with both academic objectives and social skills objectives.

5.2 Problem-Centered Instruction

Problem-centered instruction, widely used in professional education, frequently is built around collaborative learning strategies. Many of these springs are from

common roots, especially the work of John Dewey in the early part of this century. These methods are;

a. **Guided Design**: The approach asks students, working in small groups, to practice decision-making in sequenced tasks, with detailed feed-back at every step.
b. **Cases**: Case method teaching frequently asks small groups of students to tackle cases in class or in study group sessions.
c. **Simulations**: Simulations are complex, structured role-playing situations that simulate real experiences.

5.3 Writing Groups

Both in theory and practice, the most concentrated effort in undergraduate collaborative learning has focused on the teaching of writing.

5.4 Peer Teaching

With its roots in one-room schoolhouse tradition, the process of students teaching their fellow students.

5.5 Discussion Groups and Seminars

The terms discussion group and seminar refer to a broad array of teaching approaches. In college settings we usually think of discussions as processes, both formal and informal, that encourage student dialogue with teachers and with each other.

5.6 Learning Communities

Learning communities are a delivery system and a facilitating structure for the practice of collaborative learning.

6. COGNITIVE

Cognition is "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses"(Oxford dictionary). It encompasses processes such as attention, the formation of knowledge, memory and working memory, judgment and evaluation, reasoning and "computation", problem solving and decision making, comprehension and production of language. Cognitive processes use existing knowledge and generate new knowledge.

Cognitive skills and knowledge involve the ability to acquire factual information, often the kind of knowledge that can easily be tested. So, *cognition* should be distinguished from social, emotional, and creative development and ability. *Cognitive science* is a growing field of study that deals with human perception, thinking, and learning.

7. RESPONSIBILITIES OF COLLEGE AND UNIVERSITY FACULTY

a. Prepare and conduct lectures and seminars to undergraduate and graduate students
b. Publish empirical and theoretical research in a variety of scholarly journals
c. Advise students with respect to academic performance, career opportunities, and pursuit of advanced degrees

d. Mentor and advise new academics, typically teaching assistants, research assistants, and junior faculty members
e. Carry out administrative and managerial duties, including chairing committees, serving as head of an academic department, and representing the university in the community at large

8. COMPETENCIES OF FACULTY

The competencies in the Education Competency Wheel will be important for Teachers from time to time; the 13 described here rose to the top of the list. This profile includes competencies that are relevant for faculty at both teaching and research universities.

8.1 Compassion

Genuinely cares about people; is concerned with their academic and non-academic problems; is available and ready to help; demonstrates real empathy with the joys and pains of others.

8.2 Creativity

Generates many new and unique ideas; makes connections among previously unrelated notions; is unafraid to use unorthodox methods; is seen as original and value-added in brainstorming settings.

8.3 Developing others

Is a people builder; provides challenging and stretching tasks and assignments; constructs compelling development plans and executes them; pushes direct reports to accept developmental moves.

8.4 Integrity and trust

Is widely trusted; is seen as a direct, truthful individual; presents truthful information in an appropriate and helpful manner; keeps confidences; admits mistakes; doesn't misrepresent himself or herself for personal gain.

8.5 Intellectual acumen

Is intelligent and capable; deals with concepts and complexity comfortably; is good at learning and deciphering new knowledge; able to assimilate new skills independently.

8.6 Interpersonal skills

Is warm and easy to approach; builds constructive and effective relationships; uses diplomacy and tact to diffuse tense situations; has a style and charm that immediately puts others at ease and disarms hostility.

8.7 Listening

Practices attentive and active listening; has the patience to hear people out; can accurately restate the opinions of others even when he or she disagrees.

8.8 Motivating others

Creates a climate in which people want to do their best; can assess each person's strengths and use them to get the best out of him or her; promotes confidence and optimistic attitudes; is someone people like working for and with.

8.9 Personal learning and development

Is personally committed to and actively works to continuously improve himself or herself; recognizes the need to change personal, interpersonal, and managerial behavior; actively seeks feedback.

8.10 Presentation skills

Is effective in a variety of formal and informal presentation settings; commands attention and manages group process during the presentation; is cognizant of audience response and able to adapt content and style accordingly.

8.11 Time management

Uses his or her time effectively and efficiently; concentrates his or her efforts on the most important priorities; adeptly handles several tasks at once.

8.12 Valuing diversity

Manages all kinds and classes of people equitably; supports equal and fair treatment and opportunity for all; fosters a climate of inclusion, where diverse thoughts are freely shared and integrated.

8.13 Written communications

Is able to write clearly and succinctly in a variety of communication settings and styles; can get messages across that instigate appropriate actions.

9. RESEARCH PROFICIENCY

The researcher strives towards proficiency in a research area, and uses the theory to expand his/her knowledge by looking through a specific theoretical lens. To the teacher, on the other hand, observation and analysis are part of the continuing work to assess every student's learning, and how the student's experiences and thinking can be guided (cf. Shulman, 2004).

The teacher will have to master many different theoretical tools to see solutions to the practical problems and challenges that occur in the complex school / college's context or the teacher's praxis theory might lead him/her to mechanically solving all students' problems in the same way with limited success.

10. CONCLUSION

To conclude, the need for an emotional balance within group is clear when one considers the cognitive, motivational and emotional challenges of collaborative learning (Järvenoja & Järvelä 2009, Kirschner *et al.* 2006). However, more research needs to be carried out in order to understand how emotions circulate and interact with knowledge elaboration in natural settings. In the future, more specific theoretical models are needed that explicitly address the interplay between individual cognition, emotion and motivation with interpersonal communication and regulation, in the context of a collaborative learning environment.

The paper analyzes how education in schools/ colleges meets the demands for cognitive development, particularly critical thinking and creativity of students. The anticipated criteria were hard to reach in most of the observed classrooms. Though most teachers showed an understanding of what would develop the students cognitively, they lacked the understanding to translate this knowledge into practice.

The teachers tended to plan focusing what should be taught rather than students' cognition.

Intelligence seems to be the result of an individual combination of unique biological dispositions that can be developed and refined, presumably in school / colleges. The teacher will have to meet with several challenges when trying to teach the students productive thinking: Balancing what is valued in society with teaching critical thinking and creativity, coping with traditional expectations on what a classroom context and a qualitative lesson ought to be, and considering how thinking, intelligence, and creativity are developed.

Underlying theoretical ideas will most likely result in different interpretations of what should be done in the classroom. There are few practical role models to turn to, when teachers try to find a pedagogy for the future. This paper will explore how the teachers cope with some of the challenges of teaching good thinking.

REFERENCES

1. Astin, A. (1993). *What matters in college: Four critical years revisited.* San Francisco: Jossey Bass.
2. Barr, R.B., & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education. *Change, 27*(6), 12-25.
3. Björklund, L-E. (2008). *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning.* [From Novis to Expert: Experienced Knowledge in a Cognitive and Didactic Light] D.diss. Linköpings University.Clearinghouse on Higher Education.
4. Crook C (2000) Motivation and the ecology of collaborative learning. In: Joiner R, Littleton, Faultner KD & Miell D (eds) Rethinking Collaborative Learning. London UK, Free Association Books: 161–178.
5. Dillenbourg P (1999) What do you mean by 'collaborative learning'? In: Dillenbourg P (ed) Collaborative Learning: Cognitive and computational approaches. Oxford UK, Elsevier: 1–19.
6. Fairweather, J. (1996). *Faculty work and public trust: Restoring the value of teaching and public service in American academic life*. Boston: Allyn & Bacon.
7. Fairweather, J. (2002). The mythologies of faculty productivity: Implications for institutional policy and decision making. *The Journal of Higher Education, 73*, 26-48.
8. Järvenoja H & Järvelä S (2009) Emotion control in collaborative learning situations – dostudents regulate emotions evoked from social challenges? British Journal of Educational Psychology 79: 463–481.
9. Johnson, D.W. and R.T. Johnson. Cooperation and Competition: Theory and Research. Edina, MN: Interaction Book Company, 1989
10. Johnson, David W., R. Johnson, and E. Holubec. Circles of Learning: Coopera-tion in the Classroom. Edina, MN: Interaction Book Company, 1990.
11. Kahneman, D. (2011). *Thinking, Fast and Slow.* New York: Farrar, Straus and Giroux.
12. Kezar, A. (1999). *Higher education trends (1997-1999): Faculty.* Washington, DC: ERIC
13. Kindeberg, T. (2011). *Pedagogisk retorik – den muntliga relationen i undervisningen.* [Pedagogical Rhetoric –the dialogical relation in education] Stockholm: Natur och Kultur.

14. Kirschner PA, Sweller J & Clark RE (2006) Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. Educational Psychologist 41: 75–86.
15. Kuh, G. D. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. *Change, 33*(3), 10-17, 66.
16. Marsh, H.W. & Hattie, J. (2002). The relation between research productivity and teaching effectiveness: Complementary, antagonistic, or independent constructs? *The Journal of Higher Education, 73,* 604-641.
17. Menges, R. (2000). Shortcomings of research on evaluating and improving teaching in higher education. In K.E. Ryna (Ed.), *Evaluating teaching in higher education: A vision for the future.* (New Directions for Teaching and Learning No. 83) (pp. 5-11). San Francisco: Jossey-Bass.
18. Oxford dictionary "Cognition - definition of cognition in English from the Oxford dictionary". www.oxforddictionaries.com. Retrieved 2016-02-04.
19. Paavola S, Lipponen L & Hakkarainen K (2004) Models of Innovative Knowledge Communities and Three Metaphors of Learning. Review of Educational Research 74(4): 557–576.
20. Pascarella, E. (2001). Identifying excellence in undergraduate education: Are we even close?, *Change, 33* (3), 19-23.
21. Roschelle J & Teasley S (1995) The construction of shared knowledge in collaborative problem solving. In: O'Malley CE (ed) Computer Supported Collaborative Learning. Heidelberg, Springer-Verlag: 69–97.
22. Scardamalia M & Bereiter C (2003) Knowledge building. In: Guthrie JW (ed) Encyclopedia of Education (2nd ed.). New York NY, Macmillan: 1370–1373.
23. Sfard A (1998) On two metaphors for learning and the dangers of choosing just one. Educational Researcher 27(2): 4–13. .3333
24. Shulman, L. S. (2004). *The Wisdom of Practice: Essays on Teaching, Learning, and Learning to Teach.* San Francisco: Jossey-Bass.
25. Stage, F.K., Muller, P., Kinzie, J., Simmons, A. (1998). *Creating learning centered classrooms: What does learning theory have to say*. Washington, DC: ASHE-ERIC Higher Education Reports.
26. Stahl G (2006) Group Cognition: Computer Support for Collaborative Knowledge Building. Cambridge MA, MIT Press.
27. Willingham, D. T. (2009). Why don't Students Like School? A cognitive scientist answers questions about how the mind works and what it means for the classroom. San Francisco: Jossey-Bass.
28. Wingspread Group on Higher Education. (1993). *An American imperative: Higher expectations for higher education*. Racine, WI: Johnson Foundation.