

Environmental Essentials of Signature Pedagogy of Constructivist Teacher Education-An Analogy

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Abstract

There is a world-wide call for teacher quality up gradation which is being attempted through introduction of constructivist pedagogy in teacher education institutions in a way that mirrors constructivist approach to teaching learning in schools. In India too, recent reforms in teacher education has attempted adoption of this new paradigm. In spite of this policy change, teacher education practice remains largely in the old pattern and even teacher educators and student teachers fails to comprehend the meaning of what it means to be constructivist in teaching learning, whether in school or in teacher education institution. Taking the premise that construction or meaning making largely depends on the existing knowledge and experience, this paper uses an analogy of learning the culinary art and learning to teach. This paper attempts to clarify the characteristics of signature pedagogy of teacher education focusing on the threshold concept of constructivism by using the analogy of culinary skills as the contextual/environmental element. It is assumed that the analogy helps the student teachers to comprehend the meaning of the abstract idea of constructivism because in the cultural context of Kerala most student teachers are clear about what it means to learn how to learn cooking. This paper fits into the theme of this conference as future teachers and teacher educators would learn how to relate something as abstract as constructivism with something intimately connected with life and cultural environment as learning to nourish oneself and the younger ones. While cooking facilitates nourishment of body, teaching facilitates learning and development of mind. Building upon the analogy between these two essential process of sustaining and developing human life and culture, this paper augments its arguments with the concepts of signature pedagogy and threshold concepts and elaborates on how these ideas would help to further clarify and improve the theory and practice of constructivism in teacher education.

Keywords: Analogy, Constructivism, Culinary art, Teacher Education, Threshold concepts

Introduction

This paper bases on a few assumptions. One, Today's education face enormous challenges. Two, there is a continuous attempt on the part of the state, policy makers, society, and teachers and teacher educators to improve the quality of education at all levels. Three, In spite of the best efforts school as well as higher education fails to raise the standards to the desirable levels. Four, one of the serious bottlenecks for achieving this end is quality of teachers and their education. Five, the recent attempts to develop and improve teacher education through reforms that revolve around constructivist learning principles is yet to become well entrenched in our teacher education system. Six, Efforts to improve quality of teacher education through constructivist practice needs further support and clarity to our student teachers and teacher educators. Seven, the theme of this congregation namely '*Mapping New Terrain of Environmental Psychology in 21st Century Teacher Education*' reflects our desire to improve teacher education practice and theory by rooting it in the human experience, environment, culture and daily life.

Need for Teacher education to be more experience based

The task of improving quality of education requires immensely skilful teaching which in turn require teacher education that support teachers' continuous learning. One difficulty in bringing about qualitative shift in school practice is that teachers and many a teacher educators of today were educated in a paradigm diametrically different from what we propose as quality education experience today. Acquiring a practice that is different from what teachers themselves experienced as students requires learning opportunities for teachers that are more powerful than simply dictating-hearing, writing-reading, and telling-listening about new pedagogical ideas (Ball and Cohen, 2000). Teachers, as with any other category of learners, learn best by studying, doing, and reflecting; by collaborating with other teachers; by looking closely at students and their work; and by sharing what they see.

Objective

To clarify the characteristics of signature pedagogy of teacher education focusing on the threshold concept of constructivism by using the analogy of culinary skills learning as the contextual/environmental element.

Constructivism as the Threshold Concept of Understanding teaching- Learning

Threshold concepts, according to Meyer and Land (2003), are certain concepts that are central to master a given subject. Such concepts are: 1) **Transformative**- in that, once understood, its effect on creating a significant shift in learning and behaviour and the transformed perspective brings in a shift in values, feeling or attitudes. 2) **Irreversible**- in that the change of perspective brought by a threshold concept is unlikely to be forgotten, or will be unlearned only by considerable effort. Once understood the learner is unlikely to forget threshold concepts. 3) **Integrative**- that is, threshold concepts exposes the previously hidden interrelatedness of other related concepts, enabling learners to coherently integrate what were previously seen as unrelated aspects of the discipline. 4) **Bounded**- threshold concepts border with other thresholds or new conceptual spaces, especially of the interdisciplinary subjects 5) **troublesome knowledge**- they are Difficult to grasp concepts, concepts that: clash that appear illogical, counter-intuitive and initially very difficult for learners to accept.

The relevance of resorting to threshold concepts is that Concept-based instruction, places learning process in the “big picture” context. This leads students to think about content and facts “at a much deeper level” and “as a practitioner would in that discipline” (Schill & Howell 2011). According to the International Baccalaureate Organization (IBO), teaching and learning that is driven by overarching concepts necessitates that students transfer their knowledge between personal experiences, learning from other disciplines, and the broader global community. Thus, concept -based instruction mandates more critical thinking at increasingly higher levels (Erickson 2012).

This paper identifies Constructivism, the learning as meaning making, as the transformative, integrative, irreversible yet troublesome idea that every student teacher and teacher educator needs to fully assimilate to become a professional educator of modern times. One may ask what is transformational about this threshold concept. This brings in a new paradigm of seeing and understanding teaching learning process that share several features of professional development strategies that improve teaching (Darling-Hammond and McLaughlin 1995). A teacher who attain the threshold concept of constructivism will among other things realise that learning is:

- experiential, engaging teachers in concrete tasks of teaching, assessment, and observation that illuminate the processes of learning and development;

- grounded in participants' questions, inquiry, and experimentation as well as profession wide research;
- collaborative, involving a sharing of knowledge among educators;
- sustained and intensive, supported by modelling, coaching, and problem solving around specific problems of practice;

Unfortunately there are many challenges and problems student teachers and teacher educators may face when learning constructivism. One is that many teacher educators, teachers and student teachers are used to a totally different learning paradigm than the one suggested by constructivism. The cultural background that values authorities and authoritarian knowledge, the one that values expertise and age, the one that values verbalism and test performance poses challenges to the adoption of constructivist paradigm. It does not fit with a kind of semesterised, compartmentalized almost Mcdonaldized set of fragments where you have a few weeks of teaching, an exam, and then that's it, and then you are into the next module. Hence this paper is an attempt to support and facilitate teacher educators and student teachers to engage in constructivism in terms of teaching and learning by helping them to grasp the meaning of it by using the analogy of culinary art. By using the universal themes of cooking, engaging them in active comparison of the familiar concept with the unfamiliar concept this analogy creates connections to students' prior experience brings relevance to student learning. It facilitates deeper understanding of Constructivism. The analogy acts as a springboard for student teachers to grasp the challenging concept of constructivism (Erickson, 2008).

Signature pedagogy and Culinary Art as Experiential basis to understand constructivist Teacher education

This paper takes an approach to knowledge production John Dewey (1929) sought—one that empowers teachers with greater understanding of complex concepts in teacher education such as constructivism. The kind of learning found in rich professional development settings has several key features (Ball and Cohen, 2000):

- It is centred around the critical activities of teaching and learning—planning lessons, evaluating student work, developing curriculum—rather than in abstractions and generalities;
- It grows from investigations of practice through cases, questions, analysis, and criticism; and

- It is built on substantial professional discourse that fosters analysis and communication about practices and values in ways that build collegiality and standards of practice.

These elements need to be part of a seamless process of professional learning that begins in pre service education, continues through the early years of induction, and extends through years of developing accomplished practice. Teachers share knowledge and refine their practice throughout their careers. Without these supports, learning to teach well is extremely difficult.

Professional education is a synthesis of three apprenticeships—a cognitive apprenticeship wherein one learns to think like a professional, a practical apprenticeship where one learns to perform like a professional, and a moral apprenticeship where one learns to think and act in a responsible and ethical manner that integrates across all three domains (Shulman, 2005). We strive to empower instructors by helping them develop a deep understanding of how students learn, so that they can effectively apply and adapt teaching strategies to meet their own goals and their students' needs.

Signature pedagogies are shared modes of teaching that are distinct to a specific profession. These pedagogies, based in the cognitive, practical, and normative apprenticeships of professional preparation, dominate the preparation programs of a profession, both within and across institutions (Baumann, 2010). Although discipline specific, signature pedagogies share three key characteristics. First, they have a **surface structure** which entails the concrete acts of teaching and learning. Second, they are based in a **deep structure** of assumptions about how best to impart a certain canon of knowledge. Third, they have an **implicit structure**, which is related to the moral values and beliefs about professional attitudes and dispositions. In this connection, it is crucial to appreciate that signature pedagogies necessarily involve making choices of selecting certain approaches to teaching and learning while, usually unintentionally, disregarding others.

Methodology

Analogy is comparison between one thing and another, typically for the purpose of explanation or clarification. Studies have shown that the use of the analogies correctly in learning process has some advantages on students' learning. Potential beneficial roles of analogy is that they motivate students to learn and provoke their interest, compare similarities of real world and new concepts, help teachers to take students' prior knowledge into

consideration, provide a bridge between prior knowledge and new information and assist students to construct their own knowledge (Gafoor & Shilna, 2012). Analogies may be based on a mapping of relations between two very disparate domains. They express complex meaning, help in construction of alternatives, and invite interactions and helps for theory building. When students study new concepts, meaningful learning proceeds when they find and visualise connections between a newly taught context and what they already know. Analogy was used to brainstorm and organise the concept of environmental essentials of a constructivist teacher education in relation to culinary skills as the contextual/environmental element.

Characteristics of Constructivism in teaching and learning

The following are attributes that characterise constructivist teaching learning, in teacher education (and in schools too).

- Learning depends on what the learner (Student teacher) already know
- Student (teacher) centred
- Uses process approach
- Learners are actively involved - not passive receivers
- Fosters critical thinking and creates motivated and independent learning
- Learning or change comes from questioning or reassessing our existing beliefs
- Activities are interactive
- The environment (organization and management) is democratic
- Power and control in constructivist classroom is shared
- Students are encouraged to be responsible and autonomous
- Constructivist teaching involves negotiation
- Teacher in a constructivist classroom is a researcher
- Don't being confused by perplexity
- Responsibility of professional development of teachers falls on teachers themselves
- Importance of collegial sharing and support (is understood but not often practised)

Correspondence Between learning cooking and Learning to Teach

Now, let's consider correspondence between cooking analogy and teacher education. It can be seen that they have conceptual, procedural and systemic correspondences in the way beginners learn to practice both.

Concept correspondence

- Developmental- preparing food and teacher education both has the objective of facilitating maintenance and development of health, the former mainly of body and the latter that of mind, even though every aspect feed one another

Property correspondence

- Need balance- the experiences, ingredients, and the products of both cooking and teaching needs to be directed at balanced development
- Time- Both needs time to learn, and cannot be developed overnight
- Model demonstration- Both needs to be demonstrated in varied contexts and multiple ways by experts especially at the beginning stages of the practice
- Writing/self-reflection- Professional practice of both requires and is known to be supported by note making (recipes) of what is learnt and adding to it through reflection based on actual results from the field.
- Dynamism and change- Learning of both requires change, experimentation and without them the taste and interest of the product will be lost if same technique, procedure and products are served everyday
- Challenge- really learning both, cooking and teaching needs challenging situations in order that practitioners develop confidence to handle complex situations
- Need for self-assessment- The result of the efforts and the improvement there of in both the acts come from self-assessment through feedback from beneficiaries is important too.
- Feedback from experts, beneficiaries helps when they are encouraging and specific to correct the practice
- Avoiding criticism and rewarding remarkable performance by both experts and beneficiaries helps beginners gain in confidence and develop positive attitudes and commitment to the practice
- Valuing the Profession- learning both cooking and teaching needs the practitioner to really value the acts.
- Internship- after sufficient opportunity to observe, think, and discuss learners in both the arts should be given free responsibility to deal with the real life situations
- Workshops that intent real products where intensive practical experience is obtained in a collaborative environment helps in learning both

- Seeking help and collaboration- Learning both the arts are facilitated by help, collaboration and give and take among peers, experts and beneficiaries

This analogy will help both teacher educators and student teachers to remember characteristics of a signature pedagogy for learning to teach in a constructivist teacher education and school education environment.

Conclusion and Implications

The purpose of this paper was to accelerate discussion of constructivism as a threshold concept in learning environments of teacher education by relating the idea of constructivist teacher education with the act of culinary profession. Difficulty in understanding threshold concepts will affect the teacher trainees' critical thinking. Good settings for teacher learning—in both colleges of education and schools—provide lots of opportunities for research and inquiry, for trying and testing, for talking about and evaluating the results of learning and teaching. The "rub between theory and practice" (Miller & Silvernail 1994) occurs most productively when questions arise in the context of real life of learners and work in progress, and where research and disciplined inquiry feed one another.

The new programmes of teacher education typically engage prospective teachers in studying and conducting their own inquiries through cases, action research, and structured reflections about practice. They envision the professional teacher as one who learns from teaching rather than as one who has finished learning how to teach, and the job of teacher education as developing the capacity to inquire systematically and sensitively into the nature of learning and the effects of teaching. The analogy of learning the art of preparing food was used for learning the threshold concept of education namely constructivism in order that characteristics of a signature pedagogy of teacher education can be made more explicit for both practitioners and student teachers. How student-teachers assimilate the abstract concepts and principles of education largely depends on the climate we create in teacher education. Student teachers' prior knowledge can either help or hinder their becoming progressive educators. It is better if teacher education curricula and practice remind occasionally that Student- teachers come with knowledge, beliefs, and attitudes gained in earlier stages and through daily life. As student-teachers bring this knowledge to bear in their classroom practices, it influences how they teach and learn. When teacher education practice is inert, insufficient for connecting with daily life, cultural and traditional experiences are neglected or when their previous experiences come to play inappropriately and inaccurately , it interfere

with development of teachers who can really bring in an education reform that will sustain quality of education and life in view of the emerging challenges. The teacher education environment and experiences should facilitate and model how student-teachers organize knowledge, how they learn and apply what they know. Teacher educators must take effort to make connections between pieces of knowledge, structures complex ideas and principles accurately and meaningfully.

Motivation plays a critical role in guiding the direction, intensity, persistence, and quality of the learning behaviours not only of younger learners but also of learners in teacher education. When teacher educators create in their learners an expectation to successfully achieve the complex concepts like constructivism with appropriate support from their environment, student-teachers are likely to be strongly motivated to adopt them in their practice. Learning and performance of abstract and complex principles, including in pedagogy, are best fostered when learners focuses on a specific goal of learning, in an environment of appropriate level of challenge. Practical learning of pedagogy must be coupled with feedback that explicitly communicates about student teachers' performance relative to specific target criteria, and must provide information helpful for them to progress in meeting desired level of performance, and must be given at a time and frequency that permit progress of pedagogic practice. Student teachers must get opportunity to assess the task at hand, to evaluate their strengths and weaknesses, to plan their approach, to try and judge various strategies, and to reflect how far every approach and technique they purposefully experiment is working. Unfortunately, our teacher education practice does not permit student- teachers to engage in these processes in a natural environment that reflects daily life and beliefs thereof. When teacher education practice permit and encourage student-teachers to use and learn from experiences of their daily life and cultural setting, it will help them to develop in confidence and to gain intellectual habits that not only improve their own performance but also their effectiveness as teachers.

References

- Baumann, P. J. (2010). *In search of signature pedagogies for teacher education: The critical case of Kodály-inspired music teacher education* (Doctoral dissertation).
- Ball, D., and D. Cohen. (2000). "Developing Practice, Developing Practitioners: Toward a Practice-based Theory of Professional Education." In *The Heart of the Matter:*

Teaching as the Learning Profession, edited by L. Darling-Hammond and L. Sykes. San Francisco: Jossey-Bass.

Darling-Hammond, L. (2008). Teacher learning that supports student learning. *Teaching for intelligence*, 2(1), 91-100.

Darling-Hammond, L., and M. W. McLaughlin. (1995). "Policies That Support Professional Development in an Era of Reform." *Phi Delta Kappan* 76, 8: 597-604.

Dewey, J. (1929). *The Sources of a Science of Education*. New York: Horace Liveright.

Erickson, L. H. (2012). Concept-based teaching and learning. *IB Position Paper, International Baccalaureate Organization*.

Erickson, H. L. (2008). *Stirring the head, heart, and soul: Redefining curriculum, instruction, and concept-based learning* (3rd ed.). Thousand Oaks, CA: Corwin Press.

Gafoor, K. A., & Shilna, V. (2012). Chemistry Instruction through Analogies. In *National Level Seminar on Emerging Trends in Education*

Meyer, J., & Land, R. (2003). *Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising within the disciplines* (pp. 412-424). Edinburgh: University of Edinburgh. Chicago

Miller, L., and D. L. Silvernail. (1994). "Wells Junior High School: Evolution of a Professional Development School." In *Professional Development Schools: Schools for Developing a Profession*, edited by L. Darling-Hammond. New York: Teachers College Press.

Shulman, L. (2005). The signature pedagogies of the professions of law, medicine, engineering, and the clergy: Potential lessons for the education of teachers. In *Talk Delivered at the Math Science Partnerships (MSP) Workshop: "Teacher Education for Effective Teaching and Learning" Hosted by the National Research Council's Center for Education February* (pp. 6-8).