

Fostering new and innovative teaching methods by transforming teacher training into distance delivery mode – creating conditions for dialogue and inclusion of diverse epistemologies

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Abstract

The NORHED project, “Enhancing access, quality and sustainability of teacher training, professional development of teachers using ICTs and distance delivery mode” (QUANTICT), aims at developing teacher training programs so as to reach out to a broader range of students, including vulnerable groups related to gender, cast, ethnicity, language and physical disabilities. The paper gives a brief overview of different approaches to e-learning, advantages and disadvantages, and highlights the pedagogical characteristics of constructivist and collaborative learning as the core foundations of the e-learning approach. The paper concludes with a proposed theoretical concept merging the

The new possibilities of emerging technologies in ICT-based distance education

Research on emerging technologies for distance education (e-learning, open and flexible distance education etc), has revealed a range of new possibilities, such as increased flexibility, access to a wider range of programmes, saving resources (paper, travel) and high quality teaching material. The use of ICTs in teaching have also proved to foster new and interesting teaching methods and transformed teaching practice (Special issue on BJET, vol 44, no 4 2013) (Kirkwood & Price, 2013; Ng'ambi, 2013; Ng'ambi & Bozalek, 2013; Scott, 2013). In particular those resting on a sociocultural approach (based on such as Dewey, Mead, Vygotsky, Bakhtin), where dialogue and social interaction are essential dimensions of teaching and learning. The dialogical dimension is further elaborated in what is called “dialogic pedagogy” inspired by (Dysthe, 2012; Nystrand, Grmoran, Kachur, & Prendergast, 1997). Dialogue, both as a mean in itself as well as dialogue as a mean for critical reflection, is an interesting perspective in designing distance education programmes.

Although distance education has been perceived as a “second range” education compared to the formal school system, research and students interests in distance education has proven otherwise (Paulsen, 2003). Furthermore, research on innovative pedagogy with digital tools have given evidence that distance mode delivery at the contrary has reformed higher education (Horn, Johnson, & Christensen, 2010).

Experiences from Norway

Previous research by the authors of this paper (Johannesen & Øgrim, 2014; Øgrim, Johannesen, Engen, & Mifsud, 2013) has revealed that a range of distance delivery modes need to be discussed and evaluated in relation to educational goals, pedagogy approaches and technical arrangements. All these aspects are heavily dependent upon the contextual, environmental and cultural conditions in which distance education is conducted. From a particular Master programme in Norway, a range of typical modes of distance delivery are identified (ibid):

- Asynchronous **text-based** course, delivered with a fixed study progress, mainly utilizing technology for text-based deliveries and discussions within a LMS¹. Rests on peer learning in terms of student feedback on intermediate products.
- **Project-based** course, based on action research as a working method to conduct educational development in real projects. Projects are presented in LMS, and feedback on each stage in the project is given by the teachers.
- **Case-based** course, based on role-play and a scenario case where students and teachers inhabit different roles. Utilize forums in LMS for discussion and interaction.
- **Self-study** course: based on online ready-made material only, not offering feedback nor supervision.
- Synchronous **video conferencing**, based on online discussion and co-writing with a fixed presence in time. Requires adequate band with and access to videoconference system.
- **Campus-based** course, where physical presence is essential for establishing a community of learning (group dynamics).

In the figure presented below, each of the six identified modes of distance-based delivery of university courses is presented in terms of scalability, learning material, time/space and student completion. Further, the possibilities of dialogue and student engagement are indicated in a simple way characterized with emoticons (smileys) to highlight the methodological potential and hindrance of e-learning.

¹ Learning Management System, software for e-learning environments

	Text-based	Project-based	Case-based	Self-study	Video-conferencing	Campus-based
Scalability	Texts 😊 Peer feedback Individual feedback 😞	Video lectures 😊 Individual feedback 😞	Video lectures 😊 Peer feedback 😊 Generic feedback	Texts Peers? 😊 No feedback	Video lectures 😞 Video discussions	Lecture hall 😞
Learning material	Web and LMS 😊	Web and LMS Real projects	Web and LMS Case scenario	Web and LMS	Web and LMS Access to conf. system 😞 Peer writing	Web and LMS Group of students
Time/space	Time: Asynchronous Space: Everywhere 😊	Time: Asynchronous Space: Everywhere 😊	Time: Asynchronous Space: Everywhere 😊	Time: Asynchronous Space: Everywhere 😊	Time: Synchronous Space: Everywhere	Time: Synchronous Space: Only campus 😞
Student completion	Peer learning Feedback 😊	Sensitive to project 😞 Feedback	Role play 😊 Feedback	😞	Peer learning 😊 Video conferencing	Establish community of practice 😊

Figure 1. Typical modes of distance education

For example, there is a good potential of making the text-based course available for many students, because the course is based on digital material and peer feedback. However, as long as the course also offers individual feedback from teachers, large up-scaling is manpower demanding. Likewise, the case-based course is easy to up-scale due to its use of video lectures that can be accessed by many students, and the fact that it rests mainly on peer and generic feedback. The “grump” placed at the time/space dimension of the campus-based course indicates the access-limitation of campus-based lectures compared to the flexibility of e-learning. Finally the huge smile placed on student completion in the campus-based course reminds us about the importance of building a community of practice as an arena for learning.

This short presentation of the experiences from the Norwegian context illustrates the potential of technology in methodological design of distance education and e-learning and can inform us on how use of technology can support the socio-constructivist way of learning.

The importance of dialogue and student engagement in engaging marginalized groups in learning

The present trend of globalization and modernization impacts individuals and countries in many different ways. In spite of the fact that education in most countries is a national and public responsibility, educational development has become a global concern. Research shows that an educated population is a precondition for sustainable economic growth and has thereby been viewed as a mean to combat inequality and poverty. Both nation-states, bi-lateral and multilateral agencies have approved and endorsed a global effort towards Education for All (EFA, Jomtien 1990), in 2000 included within the Millenium Developments Goals (MDGs) (Carm, 2013). The movements towards EFA, has been termed, the Global Architecture of Education (Jones, 2002 in Breidlid 2013), criticized for being hegemonic and top down in its strategies, focusing on western epistemological lenses and thereby not acknowledging cultural and national contextual realities. Countries in the so called South have experienced that their indigenous knowledge, traditions and spiritual beliefs inherited from ancestors over

generations are being threatened, value systems in which human beings rely upon for their own identity construction. There is wide acknowledgment that culture needs to be taken into account in development work. The way we perceive and understand our everyday way of life, the “just taken for granted” ways of behaving, relate to our environment, and solving our problems is understood and experienced accordingly (Berger and Luckman, 1967). Recognition of the central role of culture is long overdue, begging the question of how development work could have neglected culture for so long. A cultural lens highlights how the practices and assumptions of international development institutions are themselves shaped by culture and reveals the need for an adequate understanding of power and the character of social change at all levels of development practice.

In the case of Nepal, a country populated by about hundred ethnic groups with more than ninety-two spoken languages, having religious freedom as a secular country, makes Nepal as one of the most diverse, multi-lingual, multi-religious, and multicultural countries in the world (Shields & Rappleye, 2008). These various shades of culture and ethnicity quickly turn into the borders of socio-economic and educational inequality, further strengthened by the existence of the caste-based system of hierarchical social classification that involves elements of race, ethnicity, and occupation and has complex and contested religious implications primarily having its root to Hinduism (Shields & Rappleye, 2008, Bista, 1994).

The education system of the country has to address this issue, and there is such a national commitment to be seen in ‘Quality Education for All’. The implementation requires quality teachers through professional development of teachers and improved and expanded learning opportunity to the learners. Many of those living in scattered rural part of the country are economically poor, and also for reasons mentioned previously, deprived from access to colleges outside the community. Many teachers and students therefore rarely get the opportunity to professional development have less chances of upgrading their qualification. Ministry of Education (MOE) in Nepal is therefore looking into innovative ways of reaching out to the wider population in order to meet the EFA requirements, increase access and quality through the use of ICTs (ERT conference Dr. Awashti). This might be a promising avenue for Nepalese education provided the initiatives are able to capture and include the needs of the population and nation-state as such.

Research Question

The field of ICT and learning is complicated and complex. When introducing Internet based distance education, the complexity is increased, and trying to introduce innovative pedagogy, it is even more complex. There is a need of theoretical approaches that can help us to understand some of this complexity, and to develop concepts for analysis and action.

There is a further need to investigate how a sociocultural and dialogue oriented design of distance education can foster the access and engagement of a multi-voiced identity forming and professional development. This research question can be seen from different angles, namely on one hand, design of distance education, and on the other hand, more flexible and inclusive strategies to reach out to a diverse population.

Constructivism as a stepping stone

The philosophical foundation can be found within constructivism, a theory about how people learn, stating that people construct their understanding and knowledge through experiencing and reflecting on those experiences. This implies that knowledge cannot be transferred, but has to be constructed by the learners themselves, based on their own history, previous knowledge and experiences. Teaching based on constructivism, will encourage the students to be active and investigate real problems in order to create new knowledge, reflecting their sociocultural capital, as argued among other by Vygotski, (1971) and Leontiev (1981). Nystrand et al (1997), inspired by the Russian scholars, further enhance the importance of dialogue, underscoring the role of language as the mediating tool.

Constructivism is both a theory and a philosophy of learning, describing various approaches to learning, based on the ideas that there are: multiple forms of knowledge, that prior knowledge plays a crucial role in the construction of new knowledge, and that knowledge is socially constructed (Hausfather, S. 2001).

Teaching and learning approaches based on constructivism underscore that new knowledge and experiences are being built through a process of *meaning making* that involves *language, experience and interaction with the world and others*. The approach implies a learner centered strategy, and is often seen as an alternate perspective to empiricism which says that we receive knowledge from 'out there' (meaning outside of ourselves). Constructivism conceptualizes knowledge as situated and contextual, where new knowledge may lead to individual as well as societal transformation and development, and where knowledge is embedded in community and identity formation.

Constructivist learning is opposed to vertical input oriented models of learning in where one assumes there is a competent teacher who knows what is to be learned, according to a fixed content (Engeström, 2008). Today, much of the most intriguing kinds of learning and important transformations originate from new forms of activities which are not yet there. We literally learn while activities and knowledge are being created and reconstructed without the competent teacher. The standard learning theories based upon teacher centered, knowledge delivery and rote learning has little to offer if one wants to understand transformative processes (Carm, 2012, 2014).

Lave and Wenger (1991) also build upon the Russian school of thought and underscores the importance of situating and contextualizing knowledge in a given environment. They regard knowledge as constructed through interaction, further identified as interaction with the learner and his/her immediate environment and in dialogue with others, explained as horizontal interaction and reflection (ibid). It is contextualized within the context of a given culture and language, where knowledge is created through a process where new information is interacting with prior knowledge and experiences of the learner.

Situated and context-sensitive knowledge is embedded in the local community and a part of the people's identity construction. Knowledge aiming at individual or local change and transformation is situated or contextualized, often termed indigenous as opposed to

knowledge transmitted by authorities, viewed as universal, rational or scientific. Wenger et al (2009) have developed this idea to net based communities.

Knowledges and epistemologies of learning

Indigenous knowledge is the knowledge that people in a given community have developed over time, and that continues to develop. It is based on experience, often tested over centuries of use, adapted to local culture and environment. Even though indigenous knowledges are multiple, we can still identify some common threads that bind them together (Breidlid, 2013). Indigenous knowledges are by definition interdisciplinary, where local people think of and manage their natural environment as a whole system, developed in specific historical and cultural contexts, and are therefore typically not generated but a set of pre-specified procedures or rules and orally passed down from one generation to the next (Semali & Kincheloe, 1999). Indigenous knowledges bridge the spiritual world with the physical world, and it is therefore a need for assessing the extent to which the cultural embeddedness of knowledge creates meaning without becoming unacceptably distorted (Sillitoe, 1998).

Contextual realities, people's everyday lives, micro- or meso-level activities guided by culture, and contextual or established knowledges can be explored, discussed and contested. Cultural practices, traditions and norms are contested, as is knowledge, by hegemonic, global agents and actors in the name of globalization or through media's influential role. Upcoming generations are taught not to respect their own inherited roots, and abolishing what has been the truth in their local community for generations. "Universal knowledge", also termed Western, Eurocentric knowledge is threatening local indigenous knowledge systems (IKS), the multiethnic and multilingual cultural diversity within and between countries and regions (Carm, 2014).

Alternatively, when the learners are invited to take part in their own learning processes, to identify and reflect upon what one just regards as "given", the traditions representing the rules and the norms or cultural traditions, contextualized and situated knowledge, open up for new opportunities for learning based upon one's own ethnical roots. These processes may eventually lead to an expanded understanding of the issue at stake, to localized initiatives and sustained developmental activities, based upon the merger of IKS and Western knowledge.

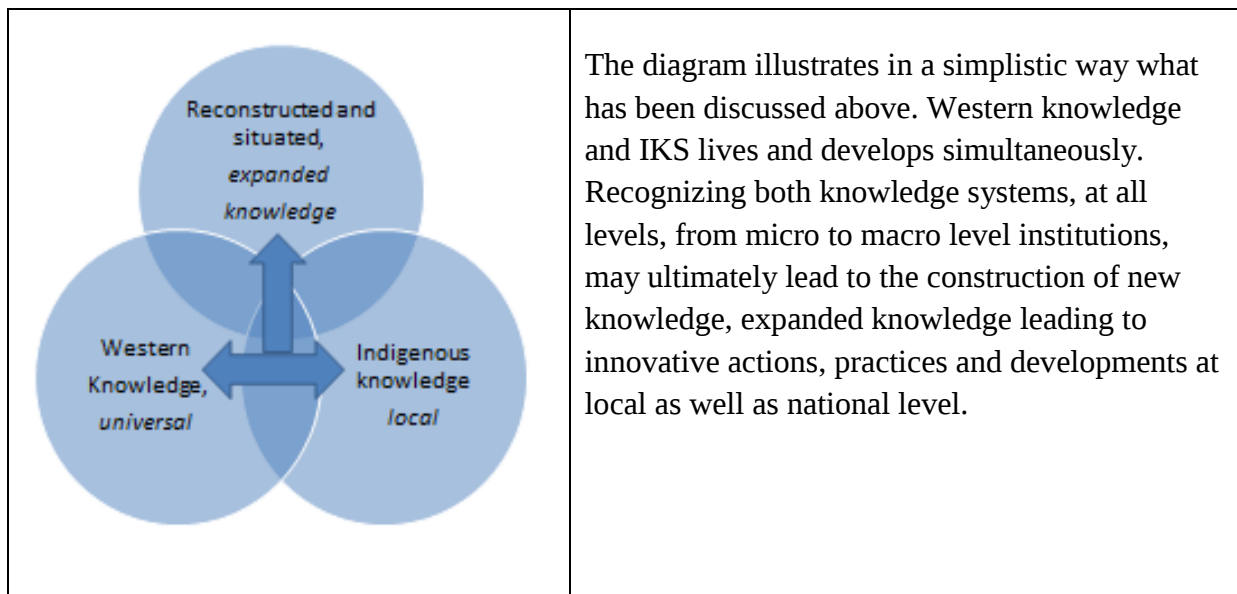


Figure 2. Western, indigenous and reconstructed knowledge

Emerging theoretical notions supporting a focus on Internet-based dialogues and student interaction

In the following, some promising approaches are presented, approaches that hopefully may be used to understand and analyse how a sociocultural and dialogue oriented design of distance education can foster the engagement of a broad group of students in identity forming and professional development. We will further elaborate the potential and relevance of these approaches in the Nepali context of distance education.

Social presence

When applying pedagogical approaches based on dialogue and inclusion, contact and conversation between students and teachers and between fellow students is a prerequisite. Traditional education presupposes physical presence of the students. The use of Internet and mobile phones have changed this and provided new challenges. Social presence (Short, Williams, & Christie, 1976; Tu & McIsaac, 2010) is one particular phenomenon that need to be discussed when designing distance education for dialogue and inclusion. The concept of social presence may be utilized when students and teachers are separated in time and/or space. Gunawardena and Zittle (1997) define social presence as the extent to which participants in the digital learning environment create the feeling that the other participants are physically present or "real". In line with this, Short et al (1976, p 65) define social presence as the degree of presence of the other in a mediated dialogue, as well as the experience of interpersonal relationship. Tu & McIsaac (2002) have proposed a conceptual framework that can be used to understand the relationship between social presence and digital interaction. They present two components that are considered important for communication in digital learning environments, namely "intimacy" (eye contact, physical proximity and the subject of the communication, body language and facial expressions), and "immediacy" (the psychological distance between the participants). Both insufficient and excessive intimacy will affect the dialogue and the participants will therefore adjust their behavior to achieve a balanced intimacy (Short et al., 1976). The experience of closeness in communication can be improved

through the way of speaking and non-verbal signs and signals. The theory of social presence is a good starting point to describe and illustrate how technology and pedagogy are partners in the development distance education for engagement and involvement. In the process of designing distance education for the inclusion of a broad range of student groups, the approach of social presence is a promising candidate as a theoretical approach to understand the phenomenon.

Connectivism

Another emerging theory describing the new possibilities of Internet based communication is connectivism, first described by Goerge Siemens (2005). This theory also belongs to the socio-cultural school, emphasizing the role of social and cultural context. Connectivism can be characterized by the slogan “network is everything”, indicating both that people learn through contact with others, and the role of technology in learning. The central idea is the metaphor that learning happens in a network with nodes, both human, like people and organizations, and non-human nodes like information, technology etc. These nodes can be connected to other nodes and thus expand the learning network complexity. Knowledge is seen as distributed across the nodes, and "know-where" (the competence of who to ask, where to find the knowledge when it is needed) is seen as an important supplement to "know-how" and "know-what". This also includes the idea that knowledge and learning lies in the diversity of opinions that can be found in a network, and that the process of learning is more important than the knowledge itself. This idea fits nicely with the idea of multi-voiced-ness, presented earlier in this paper. Thus maintaining connections is necessary in order to obtain continuous learning. The idea of MOOC (Massive Open Online Learning) is built on the idea of connectivism, where online discussions among peer learners is one of the main elements. Dialogue and exchange of opinions and knowledge are important elements of this approach, together with the influence by the (Internet) technology on learning. As such, connectivism is a promising approach in developing distance education in the Nepalese context.

Individual and Social transformation

Opposed to the vertical input oriented model where the expert is teaching the novices, the teacher centered approach, transformation occurs where knowledge are being created through learner centered approaches, contextualized and constructed through communication and social presence. Individual and societal transformation, according to Engeström and Sannino, (2010), coincide with what they identify as expansive learning illustrated as a cyclic way of viewing how new knowledge are being created through innovative learning approaches (ibid). The framework can also be used as a tool for designing and analysing participatory and collaborative learning activities, where a diverse and multi-voiced group of learners collaborate in order to reach a new mode of teaching and learning in a given context. ‘Expansive learning is an inherently multi-voiced process of debate, negotiations and orchestration’ (Engeström, Y., & Sannino, 2010, p.36). The expansive learning cycle also is characterized by a non-linear learning process, involving analysis of contexts and issues by questioning and analyzing the given task, reflecting and testing the outcome through interaction between the various actors, to improve the existing theory or practice.

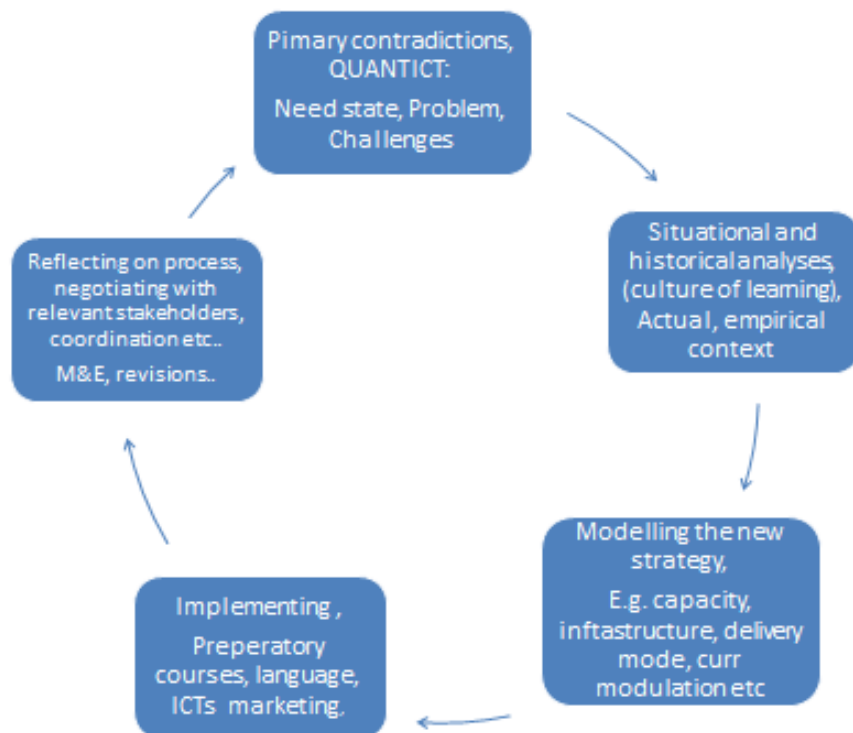


Figure 3. Sequence of learning actions in an expansive learning cycle (inspired by Engeström & Sannino, 2010).

This cyclic learning process can take place through interactions and negotiations between different actors in a multi-voiced or multiple-level of different domains, where one of the key elements is facilitation of learning or innovations, not only in process terms, but also in terms of substance. A continuous process of feeding or supporting the students, teachers or any other relevant participants with background information, detailed knowledge and facilitating access to resources on a particular topic is necessary to enable a process of de-construction and co-construction and of new knowledge among the participants.

Expansive learning is based upon collective activity through systemic mediation, monitoring and evaluation procedures. In successful expansive learning, this might eventually lead to qualitative transformation of the individual, within the given institution or the context in which the activity takes place. Changes can be identified in how collaborative learning through co- and reconstruction of new knowledge may result in local innovation and transformed practice leading to qualitative transformation in the ways in which the learning took place.

Discussion and concluding remarks

A conceptual framework of ubiquitous knowledge construction

The simplistic view of e-learning might narrow the focus on learners and become a mechanism directed solely at content delivery and thereby ignores conceptions of education and pedagogy,

A theory-based framework inspired by Peng et al (2009) may provide functional illustration whereby researchers as well as practitioners can be better informed about the decision-making processes, the problems, and the learning outcomes to be expected through e-learning approaches.

The components in the framework of ubiquitous knowledge construction are organized in a hierarchical fashion, the triangle starts from the e-learning infrastructure on the bottom, the next layer focus on the philosophy of learning, based upon constructivism leading to the optimum learning vision, termed ubiquitous knowledge construction.

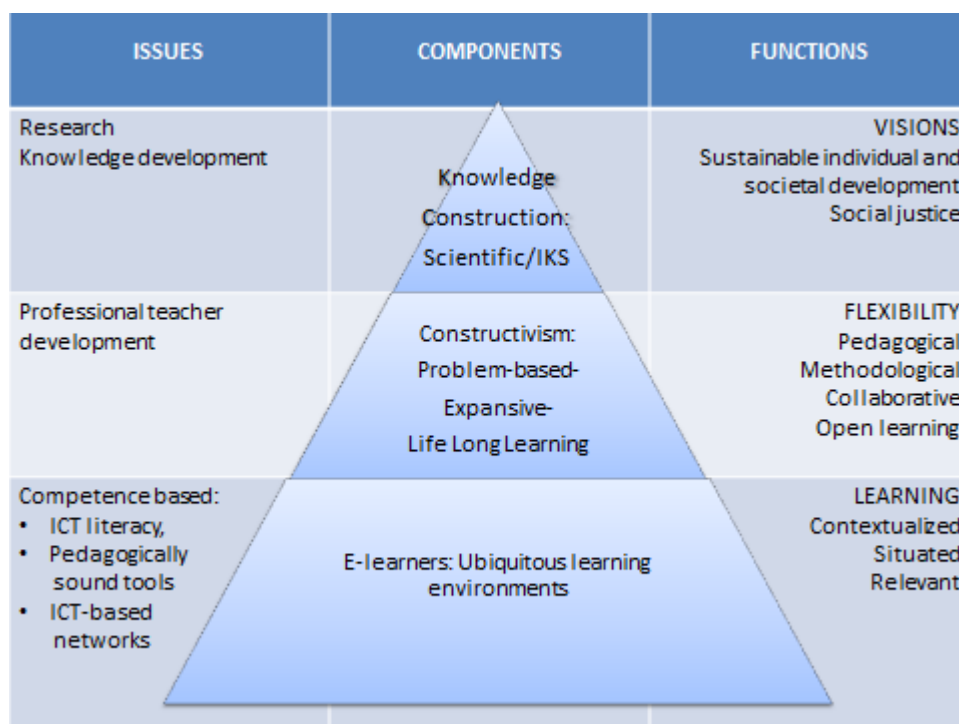


Figure 4. Conceptual framework of e-learning and ubiquitous knowledge construction, (inspired by Peng et al.2009, p. 175).

Some of the challenges, or issues of concern, are listed in the left column as well as the competence and tools and areas for further research. The various functions and utilization of ICT and e-learning can be seen in the right column of the diagram, and the triangle illustrates how ICTs can mediate different type of learning activities, where the learners gradually are building or constructing new knowledge, throughout life.

Way forward and further research

This paper has presented some promising approaches to developing distance based teacher training programmes so as to reach out to a broader range of students. The need to investigate how a sociocultural and dialogue based design can contribute to the engagement of a multi-voiced identity forming and professional development is discussed. To start out, some promising pedagogical and theoretical approaches are proposed and related to the Nepalese context of distance delivery mode in higher education. Future research is needed in order to

go into depth in these approaches, and apply them into the Nepalese praxis in combination with indigenous knowledge systems.

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