Learning and Teaching in the Knowledge Society: Challenges and Potentials

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The knowledge society is a changing society in which information expands rapidly and circulates continuously around the globe; money and capital flow in a restless and relentless search for new investment opportunities; organizations continually restructure themselves; government policies undergo volatile shifts as electorates become more and more capricious; and multicultural migration keeps reconstituting the communities in which we live. There are many aspects of the era of the knowledge society. Also, there are many factors and agents that can facilitate or hinder the transition to the knowledge society. This paper will just focus on teachers' concerns and roles on the knowledge society. The paper will start by introducing the students' concerns as end-users of the educational services. Then I will move on to introduce what knowledge society means and what are the roles and responsibility in this era and how can we support teachers in the knowledge society to develop and be helped to develop capacities for taking risks, dealing with change, and undertaking inquiries when new demands and novel problems repeatedly confront them.

Keywords: learning, teaching, knowledge, challenges, potentials

I would like to start this paper by introducing the silent and powerful voices; the students' voices. I think we can learn a lot from these voices. Also many sensible and authentic changes and decisions can be made to survive in the knowledge Society by taking these voices seriously.

Students Voices …No Need My Comments

In 2001, *The Guardian newspapers* launched a competition called The School I'd Like, in which young people were asked to imagine their ideal school. Categories used in the competition were primary (ages 4-11), lower secondary (ages 11-16) and upper secondary (ages 16-18). The guardian relieved multiple entries and from over 1500 schools and hundreds of individuals. What presented here is only a fraction of the archive but offers a detailed 'snapshot' of how school was regarded by children and young people across the UK in the early months of 2001. This was presented in a book by Catherine Burke and Ian Grosvenor (2003): *the school I'd like: Children and young people's reflections on an education for the 21st Century*. In this competition Children reported on different aspects. I will just present some voices about school buildings, knowledge and curriculum, learning, teacher and tools

School Buildings

> I want lots of colures (age 4)
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> The school buildings should be huge cylinder like buildings and a subject on each floor; we think is a good idea because then teachers can't tell you to stand in the corner (age 10).

An ‘own pace room’ where you can go at you own pace in English and maths and work from any text book you want. And then you can go to a marking machine where you put your work in one end and it comes out marked the other end (age 11)!
The roof of the whole building is a glass dome with parts which can be opened on hotter days. In the centre there is a fountain which can flow over a closed dome (age 12).
There would be also be many comfortable and informal meeting places for creative interaction in small groups on key issues, not just on the syllabus but also wider issues occurring locally and elsewhere (age 17).
The basic aspects of the buildings we are taught in do not promote learning, but instead, enhance feelings of negativity (age 15)
My idea school would be a very futuristic one. It would be made of glass and bright blue steel tubing to hold the glass in place. The ground floor of the school would be for classrooms, the outside would be painted gold and it would have many oval windows…the school would be very eco-friendly. On the roof there would be solar panels and wind turbines in the grounds of the school. This would enable the school to generate its own electricity. Also there would be a recycling are for all the school’s paper and bottles.
The toilets feel like you’re underwater with a sound track and it is done by using the same way as a picture on the cinema, so the walls have water and sea animals. Also it is the shape of a bubble.

Knowledge and Curriculum

I believe that the curriculum should contain the need for experiences, such as going to the beach the countryside, a table-tennis match, to a farm an aquarium.
I think more time should be devoted to art, design and technology. I think we should go on more trips to local, national and international museums and art galleries.
In my dream school, standards will be set for every child separately.
I do not like the way children are expected to do this by seven and that by eleven. Plus, if you have not achieved all those things by sixteen then you are told you won’t get a decent job ever. This is very harmful to all children.
My dream school should be a school which would let me explore the world and tell me human knowledge. To achieve this idea school would be located in three different places: underwater, underground and in space.
The school I ‘ld like have no rigid curriculum, only guidelines for students and teachers and all students to choose their own subjects.

Learning

Some parents or grandparents did not have the facilities or technology when they were at school which is why I think that one a week they should be able to come into school and learn about some of the new teaching methods in the curriculum with their children.
An academic city of learning. This new school will be almost like a university as we will have the freedom of choice and opinion, not treated as mobs for such a large school, they however will be trained accordingly and learn to treat us as individuals.
School is a very important part in a child’s life. Not only does it help them learn but it helps them to grow up, learn how to work together and also to socialise.

The place must be unafraid of kids starting out of windows and must not insist on 100% attention or even 100% attendance…..it is a terrible pressure for kids to have pay attention and think what they are told to think.

Teacher

Teachers should not mind if we have an opinion…
Rightly or wrongly, the power relationships between pupils and teachers are unequal in most schools, but I think that teachers frequently abuse their authority.
I think we should have a 'teach the teacher' day. We can teach the teachers how it feels to be a kind and see how hard and fast we have to do our work and so we can set the standard.
The teachers can tell us what they think of us, but in a Dream school we could tell the teachers what we think of them. So we can could write them reports and give them marks. Wouldn't it be nice if we could choose which teachers we wanted for every subject?
Every teacher should be able to decorate and bring in their personalities into their classrooms. That way they might feel relaxed and at ease and if teachers are relaxed then so are the pupils.
What I would change about the teachers is the way they are paid. I would make it that the teachers would only get paid if the pupils thought they were teaching properly.

Tools

I feel there is nothing like a teacher's enthusiasm for his subject to make learning a pleasure, and I am sure a computer cannot show enthusiasm.
Computers in classroom.
Interactive whiteboard in every classroom.
The furniture of school-room should be graceful in form and good inn quality and finish

From these voices, we can conclude that unless the children are behind our initiatives, they cannot succeed. A good education cannot to be imposed, but has to be understood and embraced by those it is intended to benefit. Children are extraordinary keen to share the burden of responsibility for examining the future of education in the knowledge society. Perhaps this should be the main lesson adults learn from 'The School I'd Like'. Not to adopt any specific proposals, building modifications, or even attempt a new ethos or new curriculum or even the up-to-date technologies- although all of these would be nice and effective in some contexts. But the first lesson must be in listening, and respecting what we hear. Children are so obviously more than ready to take up the challenge of redesigning their education in the knowledge society. ***Are we ready to meet the challenge of listening to them?*** *(Burke & Grosvenor, 2003).*

To respond to these students' concerns, Albert Einstein had said 'I never teach my pupils. I only attempt to provide the conditions in which they can learn'. Therefore, there is need for learners to take charge of their learning through abilities for self-learning, critical thinking, collaborating, communicating, information processing, problem solving and the like leading to cognition as well as metacognition. Teacher education colleges can foster learner autonomy by putting into practice the concept of 'engaged learning' (Bose, 2010).

The Idea of the Knowledge Society

The previous concerns by UK students reflect the challenges that education in UK faces in the knowledge Society. These challenges can apply to other students in different contexts in the world. The claim that education needs to respond to these challenges of the emerging global knowledge society is now the common sense position in almost every government educational policy review (Jacoby, 2007). While we may not be surprised that relatively economically advanced countries like the UK, Germany and the EU shape education policies to respond to the knowledge society (European Council, 2000) Jacoby finds the same references to the need to compete in the knowledge society shaping education policy in less developed countries such as Bangladesh and Namibia. The interesting implication Jacoby draws from this is that the idea of the knowledge society now serves as a vision of a global future that is leading to a convergence of education policies. Whether grounded on an empirical analysis of changes in the economy or motivated by a shared vision of a global networked future, the idea that we are moving into a knowledge society now raises challenges for educational theories and educational practice and shapes educational policy across the world. Mansour and Wegerif (2010) argue that education needs to respond to the accelerating rate of technological and social change associated with the knowledge Society and globalisation. In particular a need is seen for more adaptability or 'learning to learn' throughout the lifespan.

A number of organizations have developed frameworks that attempt to identify the individual skills and sets of skills students need to succeed and to help educators integrate 21st century skills into existing education programs. The enGauge 21st Century Skills framework, for instance, developed by the North Central Regional Educational Laboratory, includes "digital-age literacy," "inventive thinking," "effective communication," and "high productivity" as the most important skill sets. Education consultant and advisor Tony Wagner has conducted interviews with business leaders and observed classrooms and discovered a disconnect between what potential employers are looking for (critical thinking skills, creativity, and effective communication) and what our schools are providing (passive learning environments and lesson plans that only focus on test preparation and reward memorization). Based on his work, Tony Wagner has outlined seven skills that will be necessary for the students of today to develop in order to survive the workforce challenges of tomorrow.

1. Critical Thinking and Problem-Solving
2. Collaboration across Networks and Leading by Influence
3. Agility and Adaptability
4. Initiative and Entrepreneurialism
5. Effective Oral and Written Communication
6. Accessing and Analyzing Information
7. Curiosity and Imagination

While this is just one list it is reasonably representative of the range of lists articulating the skills needed to survive and thrive in the knowledge Society. With their focus on creative and critical thinking as well as on learning to learn, these lists are clearly a development in the same tradition as the teaching thinking skills movement, offering a new version of the sort of thinking that we should value and ought to teach more of because there isn't enough of it about. However they do not entirely fit the cognitive assumptions that lie behind many more traditional approaches to teaching thinking. It is the argument of this paper that the idea of the knowledge Society and the kinds of skills, habits and dispositions associated with it, requires that we need to re-conceptualise what we mean by education and particularly education for higher order thinking skills (Mansour and Wegerif, 2010).

From the previous discussion about the idea of the knowledge society, we can summarise as was argued by Hargreaves (2003: 17) that the knowledge society has three dimensions. First, it comprises an expanded scientific, technical, and educational sphere. Second, it involves complex ways of processing and circulating knowledge and information in a service-based economy. Third, it entails basic changes in how corporate organisations function so they enhance continuous innovation in products and services by creating systems, teams and cultures that maximize the opportunities for manual, spontaneous learning. Across these dimensions the teacher has a key role to play for the education in the knowledge society.

Teacher Professional Development for the Knowledge Society

The term professional development is getting increasingly replaced by the broader and more significant term lifelong learning (Fenwick, 2001) as knowledge society is a learning society with knowledge and competences evolving continuously. Teachers being potentially the most important asset in the notion of a learning society need to be lifelong learners (Day, 1999).Teacher professional development is a prominent feature on the educational landscapes of developed and developing countries equally. Experience around the world in developing, industrialized, and information-based countries has shown that professional development is the key determining factor for improved student performance. Effective professional development experiences are designed to help teachers build a new understanding of teaching and learning (Lee, 2001). Teacher development can be conceptualised as a mechanism for driving change in educational systems and/or as a strategy for empowering individuals and teams to improve their professional knowledge and pedagogy (Day & Sachs, 2004).

The continual deepening of knowledge and skills is an integral part of the development of any professional working in any profession. One important means of achieving competitive advantage is the creation of conditions for the rapid acquisition of new knowledge and skills. Teaching takes place in a world dominated by change, uncertainty and increasing complexity. Government publications all over the world, in Europe, North America and the Antipodes, stress the technological, economic and social challenges which schools, and therefore teachers, face (Day, 1999). From the professional development view, Borko and Putnam (1995) argue that current educational reform recommends a shift toward a student-centred paradigm. This entails a substantial departure in teachers' approaches, from a traditional transmission of knowledge to a cognitive and social construction of knowledge. David Hargreaves (1994) identified the shifts in culture, values and practices of teachers in knowledge society.

> At its core, the new professionalism involves a movement away from teacher's traditional professional authority and autonomy towards new forms of relationships with colleagues, with students and with parents. These relationships are becoming closer as well as more intense and collaborative, involving more explicit negotiation of roles and responsibilities (p. 424).

A study in Saudi Arabia funded by the Excellence Research Center of science and Mathematics Education ECSME about science teachers' needs in Saudi Arabia by Mansour and Al-Shamrani (2011) suggests that there is a need for a different approach in professional development programmes to give teachers (a) the opportunity not only to learn the new knowledge, but also (b) to explore new pedagogies associated with teaching approaches to prepare students for the 21st century. The findings indicate that teachers expressed a need for training on teaching approaches that can help them prepare their students for the 21st century (e.g., teaching science through field trips and scientific visits, developing creative thinking among students, and teaching science for gifted students). Castells supports this trend in arguing that this shift in the social economy 'calls into question the entire education system

developed during the industrial era' and demands that we develop a new pedagogy (Castells, 2001, p.278).

Critically, Hargreaves identifies a 'post-technocratic' model of professional education in which professional development is approached from four interconnected premises:

1. Teachers are understood to have life-long professional needs and these will be met only if treated, as in the case of any learner.
2. For continuity and progression to be realized, teachers' development needs must be assessed on a regular basis.
3. Schools devise a plan for development.
4. Professional needs arising from personal sources (e.g., appraisal) have to be reconciled with school needs from institutional sources (e.g., a development plan).

Hargreaves's model appears to move beyond Hoyle's (1980) earlier notions that teachers operate on restricted or extended professionality by implicitly suggesting that teachers do not have a choice (Cited in Day, 1999, p. 9). The tradition of 'in-service days' as the norm in professional development has been criticized as inadequate and inappropriate in the context of current educational reform efforts, and as being out of step with current research about teacher learning (Darling-Hammond & McLaughlin, 1995). In this respect and based on a another study in Saudi Arabia funded by the ECSME to explore science teachers' views of the current and the future of their professional development, Mansour and Al-Shamrani (2012) argue that in order to develop an effective teacher education programme especially for preparing teachers for the knowledge society, we must identify not only the presence of change, but also teachers' views about the change. From this perspective, teachers' views and self-evaluations are practical indicators, providing a good estimation of teachers' experiences and establishing the framework for future teacher professional development. This study recommends that 'any new CPD framework [should] positively encourage, empower and enable teachers to develop and improve their professional practice'.

Darling-Hammond and McLaughlin (1995) argue that helping teachers to rethink their practice necessitates professional development which involves teachers in both teaching and learning and that this creates a new vision of what, when and how teachers should learn. In this sense, learning is considered as"the process in which persons make the decision of engaging in getting to know" (Alrø, Skovsmose & Valero, 2007, p. 2). In this context, Kelchtermans (2004) defines continuing professional development (CPD) as ''a learning process resulting from meaningful interaction with the context (both in time and space) and eventually leading to changes in teachers' professional practice (actions) and in their thinking about that practice'' (220). This interaction eventually leads to changes in a teacher's professional practice as well as in their thinking about that practice.

If teachers could decide for themselves what, why and when to participate in programmes, they will feel ownership and be convinced on taking part in the CPD and implement its ideas in the classroom. The perception in mind it that of teachers' positiveness through a 'bottom-up' approach that seems to lack in a number of countries. Neglecting teachers in this manner resulted in attending repetitive activities that had little value to their needs (Mansour and Al-Shamrani, 2011). Similar cases were reported in England with warnings on the results that could happen because of teachers' silenced voices in the process of PD (Wegerif & Mansour, 2010). Warnings were mainly signalled in regard to teachers' ignorance, misinterpretation or even distortion to the intentions of educational policy (Towndrow, Tan, Yung, & Cohen, 2008).

Therefore, in preparing teachers for the knowledge Society, there seems a rational in Murray's (2010) suggestion that the concept of 'self-empowerment' is a valid concept in a discussion about effective CPD and teacher learning, as empowerment is where teachers decide and initiate actions in an attempt to taking the first steps that acknowledges their responsibility,

autonomy and self-directed learning. Teachers within any empowering activity are able to increase their knowledge, infuse this knowledge into their classroom materials, and become more self-confident and involved in collaborative work (Gilbert , 1994). This could happen when teachers are given the freedom to make choices and take responsibility for their profession (Howe & Stubbs, 1996).

Teaching in the Knowledge Society:

Hargreaves (2003: 24) argues:

> Teaching for today's knowledge society is technically more complex and wide-ranging than teaching has ever been. It draws on a base of research and experience about effective teaching that is always changing and expanding. Today's teachers therefore need to be committed to and continually engaged in pursuing, upgrading, self-monitoring and reviewing their own professional learning. This includes, but is not restricted to, participating in face-to-face and virtual professional learning networks, adopting continuous professional development portfolios where teachers accumulate and review their own professional learning, consulting and critically applying the evidence of educational research so their practice is always informed by it, undertaking action research and inquiry of their own, and connecting professional learning with levels of reward in teacher pay.

Teaching is no longer an individual sport, but rather a team sport! The team here is not a team of just teachers it is a team of teachers, students, technicians, head teachers, parents. The team in this context can be called community of practice. According to Wenger (1998), communities of practice are groups of people who share a passion for something they do and who interact regularly to learn how to do it better. Communities of practice define themselves along three dimensions: what they are about, how they function, and what capabilities they produce. Successful schools have teams of communities working together on complex teaching and learning strategies for all students in their schools. For example, teachers must not only be focused on the students in his/her classroom, but all the students in the school.

Stigler and Hiebert (1999) describe the Japanese system of change, which features school-based professional development focused on "lesson study." Groups of teachers meet over extended periods of time to develop, try out, and assess lessons. First the group defines a problem of practice and plans an approach to this problem in the context of a particular lesson, usually with a specific hypothesis in mind. Then the group members teach the lesson to their students and meet to discuss how it worked and how it might be improved. Once group members have developed an effective research lesson, they share it with other teachers. Because the entire country teaches the same curriculum, many teachers can benefit from this intensive study of a single lesson. Japan's new culture of teaching has developed through teacher-led research, collaboration, dialogue, and collegial exchange in the very schools where teachers work.

How Teachers can Survive in the Knowledge Society

In the new teacher education and training initiative for the 21st century, teachers would be required to know and understand the characteristics of the 21st century learner including aspects of pedagogical and content knowledge of subjects that they would teach the learners. These would include the incorporation of languages, cultures and traditions in community contexts as well as technology in the broadest sense (Darling-Hammond, 2006).

In the knowledge Society, teachers do not get recipes or solutions to the problems they face every day. For a simple reason these problems are changeable and are not countable. What these teachers need is know how to research these problems. Our roles as educators is not to introduce answers which they will be outdated in no time but teachers needs to develop skills to access information and strategies to work on is information.

Claxton et al. (2011) argue schools that work to build learning power have realised that effective professional development has to be more than a one day course and 'away you go'. They argue that teachers' habits as learners have to become part of the picture; how they go about changing is a relevant to their discussions as what changes they are aiming to bring about. So the school has to think of professional development in a split-screen way: ***'what'*** has to be learned and '***how'*** it might be learned which I call it a ***framework for learning***. Also, schools that work to empower their teachers through the professional development should consider the enactment of the outcome of this learning practice which is another frame needs a support by all parties at school involved on the professional development I call it **a frame for practice and enactment.** So, professional development should mean and aim to offer teachers opportunities to share experiments, successes, failures, doubts, and ideas, and then go back to the classroom and have another go (Mansour and Al-Shamrani, 2012).

Mansour and Al-Shamrani (2012) show the significance of engaging critically with teachers' voices and views of their CPD programme. Providing a mechanism for individuals to reflect and assess their professional needs giving them a voice that empowers them and paves a roadmap for development is one of the issues that need to be taken into consideration to enable implementing the concept of lifelong learning. Therefore, for this new vision of professional development for teachers in the knowledge Society and working towards professional development as a mechanism for empowering teachers by learning, Claxton et al. (2011) suggests these types of professional development opportunities have been built into the PD programmes of many schools:

Learning Reviews

It is a considered evaluation which conducted by teacher of how students are as learners and what changes could be made. It is a process that involves teachers and students together to understand the problems and work together a team to suggest solutions. So, when doing so, we are not just empowering teachers, we are equally empowering students and develop skills for the knowledge Society.

Teacher Learning Communities

The essence is a small group of teachers who meet together regularly to deepen their understanding of an approach, trying out new things and reflecting on and sharing their experiments with each other.

Coaching Partnerships

Teachers at school develop teams to reflect on their practices. They explore the challenges that they meet, share the trials and changes they have made and observe each other's lessons in order to learn from each other.

Small-scale Learning Enquires

This is a type of a small scale 'action research' enquires offer an opportunity fr teachers to pursue a particular interest, to take an idea a bit deeper, or to link an enquiry to a particular group of students rather than say a whole class.

Appreciative Inquiry (AI)

It is new way of managing change in organisation. Its four stages are Discover, Dream, Design and Destiny. Traditionally, the process of change starts from identifying a 'problem to be fixed', which runs the risk of making staff both defensive and fearful. The AI starts by trying to identify what happens when schools and individuals within it are working well. After 'Discover', you dream: creating a wish-list of what you would like to do. This frees people's minds to think more creatively. Then a team at school designs the work for an experiment. Then the team reflects on the outcomes.

A Final Word:

In the knowledge society, if teachers want to make progress as professionals and have an impact in the complex world of schools, they must learn to trust and value colleagues who are distant and different from them as well as ones who are the same. This professional trust moves people into the realm of the uncertain and unknown and in that sense 'involves a willingness to take risks or to place oneself in a vulnerable situation'. Teamwork, learning from people who are different, sharing information openly – all of these essential ingredients of the knowledge society involve vulnerability, risk and a willingness to trust that the processes of teamwork and partnership will ultimately work for the good of all, including oneself (Hargreaves, 2003:28).

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