KNOWLEDGE INTERACTION IN HIGHER EDUCATION

Abstract
This paper proposes a response to the complexity and diversity that is re-shaping Higher Education (HE) in our globalised society. Quality, lifelong learning and creativity are HE aims that should be fostered to meet both global and local challenges. The authors outline a ‘knowledge interaction framework’ that seeks to explicate and explore these new dynamics for HE. The development of ‘knowledge interaction’ is a holistic process that encompasses personal, social and cognitive learning. This knowledge interaction framework could be utilised across HE to map the identity, scope and potential of actors and stakeholders. A major issue impacting universities is the question of quality and its coexistence with HE massification. Knowledge interaction would assist adaptation to this growth and competition by aligning student-centred learning and standardisation processes. Lifelong learning and creativity have become important concepts in our knowledge society. Knowledge interaction could enhance learning and teaching practices so as to encourage innovative, life-long learners. This paper suggests a course of action whereby awareness, engagement and understanding of knowledge interaction has the potential to cultivate quality, life-long learning and higher-order learning. The framework demonstrates how intellect and inquiry could be facilitated and negotiated amongst actors and stakeholders to constitute the valued re-shaping of HE.

Introduction
This paper discusses how the purposes of HE have evolved according to local and global challenges. The background of these challenges, and their relationship to changes in HE are explored. This provides a basis from which to understand how HE needs to adapt. The reshaping of HE is investigated using the model of a ‘knowledge interaction framework’. This model outlines how learning identity, learning communities and lifelong learning form the foundations of knowledge interaction in HE. These learning paradigms can then be explicated through the learning processes of personal, social and cognitive learning. The implementation of this model is discussed using three examples of HE aims: quality, lifelong learning and creativity. Understandings, developments and prospects of these aims are articulated and examined through the lens of the ‘knowledge interaction framework’.

Background

Purposes of HE
What are the purposes and foci of HE? How much input and control do universities have as they reshape and evolve in our globalised world? Through what lenses and foci can we analyse student, institutional and societal needs and wants? From a societal focus, Gellert (1999) identified three divergent, historical models in HE – personal development, research, and professional training. From an institutional perspective, Barnett (1992) outlines four essential purposes of HE: student development, institutional self-determination and responsibility, research/culture of critical discourse, and accessibility. A more student-focused viewpoint, outlined by Stephenson (1992), believes that higher education should be judged to the extent that it: gives students confidence, ability and responsibility for continuing personal and professional development; prepares students to be personally effective in different circumstances; promotes excellence in the development, acquisition and application of knowledge and skills. The role of education is to prepare people for life, work and further learning – and to help people to develop...
advanced intellectual skills (Go8 2007). What is required is an amalgam, or interaction, of these university models and perspectives of HE – embodied in the knowledge interaction framework.

Local and global challenges
Understanding the reshaping of HE requires awareness and understanding of the causes, effects and nuances of globalisation. Scott (1995) describes the advances, shifts and changes in a post-industrial society as being: technological advances and changes in economic structure (technologies and the global economy); social and cultural shifts (intensification of consumerism and individualised lifestyles); changes in the structure of organisation and the pattern of employment (merging work/economy and life/society). The Australian Bureau of Statistics (Trewin 2002) outlines the core components of a knowledge-based economy/society as being: innovation and entrepreneurship, human capital, information and communications technology, as well as an economic and social impacts dimension. Giddens (1991) perceives modernity as dynamic: institutions are transformed through knowledge; knowledge is transportable and transferable; and social relations are articulated across wide spans of time and space. UNESCO’s (2004) position paper ‘Higher Education in Globalized Society’ outlines four key elements of globalisation: growth in importance of knowledge economy/society; development of new trade agreements which cover trade in educational services; innovations related to ICTs; plus an emphasis on the role of the market and market economy. Highlighting the conditions of a post-industrial society shows links with - and influences upon - recent developments in HE. This provides the context for determining the process by which the aims and purposes of HE can be developed and improved. The nature of local and global challenges for HE include continual/ongoing change in the three areas outlined below:

- **Work, education and training** The increase of diversity and competition within the areas of work, education and training will inform and influence the reshaping of HE. According to Edwards (2004) the growth of transnational HE has arisen due to increased technological potential, as well as global demand for highly educated people with competitive employment skills. The pressure to adapt to this demand and to produce quality education are vital issues for HE: “The massification of higher education continues to be a major factor, perhaps the major factor, behind the educational challenges facing universities and the higher education systems of developed nations” (James 2007, p. 1). How will universities define themselves – along with their learning and teaching - to compete on the global stage for international students? This constitutes the core reshaping of HE in contemporary society.

- **Technology and innovation** Technological and social advances continually enhance, disrupt and challenge traditional HE boundaries. Our understanding of technology and innovation is constantly evolving and transforming our learning and teaching experiences. Edwards (2004) outlines how communication and information technologies are impacting upon pedagogy, raising issues about learning experiences, skills turnover and lifelong learning. James (2007) also discusses how information and communication technology – alongside internationalisation, globalisation and other trends – are influencing the character of teaching and learning in the modern university. There is an increased compression of time and space and a deterritorialization of the learning experience (King 2004a). ‘Deterritorialization’ is evident, inter alia, from the influx of distance/online learning opportunities available for students to choose from. This has directly contributed to the global marketisation of HE and
the diversification of courses that attracted students en masse, in the local, international, and virtual realms.

• **Society, culture and economy** The concepts of internationalisation, globalisation and consumerism have infiltrated HE and produced a system whereby marketisation has become a primary driver of policy and outcomes. Edwards (2004) outlines how university systems are at least a quasi-market in that competition is forcing universities to think hard about their strengths and weaknesses, and how best they could specialize to match their strengths to new opportunities. Scott (1995) highlights how the diversity of student origins, the heterogeneity of student destinations, as well as the undermining of canonical knowledge has created multiple entry/exit points – meaning greater flexibility and choice for students. ‘Students appear to have growing expectations of the quality of teaching and services and seeking ‘24/7’ and ‘just-in-time’ access to information and staff’ (James 2007, p. 3). The curriculum is shifting according to consumers and stakeholders (Barnett & Coates 2005). As a result, universities have become more market-conscious of the variable factors that influence a student’s choice of university: location, courses, subjects, specialisations, focus, price, duration, exchanges, professional and industry links/work experience:

*Reflexivity and the reshaping of HE*

Local and global challenges described above have generated new levels of complexity and diversity within HE. How higher education confronts or adjusts to these concepts constitutes the reshaping of higher education in our globalised world. Giddens (1991) views reflexivity as the chronic revision of social activities and material relations with nature in the light of new information or knowledge. Dealing with the complexities stemming from a post-industrial society is by nature ‘reflexive’ and indicates a possible direction for the future of higher education. Reflexivity - the ability to be both responsive and flexible – is required in this changing environment. According to Barnett (2000) there are four key concepts to understanding the post-modern university: uncertainty, unpredictability, changeability and contestability. As aspects of globalisation infringe upon HE institutions, their traditional features and role in society are being disputed. Barnett & Coates (2005) highlight how universities are not the only knowledge producers in the knowledge society – there are many competitors in the race to generate useful, practical and applicable knowledge applicable to economy and industry.

Within this knowledge marketplace, transparency, accountability and benchmarking have become important features. The need for checks, balances and quality control across both private and public institutions has permeated HE. According to Scott (1995) there has been a shift in the academic arena from closed to open intellectual systems; as a result, reflexivity is expressed through an increased emphasis on accountability. Similarly, King (2004b) contends HE is a public institution in an age where complexity, size and distance emphasises a need for transparency. This often leads to organisational tensions as actors (e.g. students, lecturers) and stakeholders (e.g. employers, business and industry) possess different values and opinions towards aim and benchmarks. Barnett (2003) outlines this situation as a list of challenges within HE: internal/external, individual/collective, disciplinarity/interdisciplinarity/practical knowledge, instrumental/hermeneutical and managerial/professional. The constancy, privacy and irrefutability of HE systems and status has dissolved in the move towards transparency and accountability.
This reshaping of HE is due to the layering and extension of knowledge patterns. King (2004b) views everyday, lay, professional knowledge as closely entwined with scientific accounts – with both forms subject to critical and thoughtful engagement, that is, reflexivity. The objectives, purposes and aims of HE institutions are re-evaluated according to the challenges that have arisen from globalisation, a knowledge-based economy and post-industrial society. HE institutions are, at one level, automatically ‘reflexive’ in dealing with these tensions, changes and complexities. However, there needs to be a second level of preparations and assurances in facing these disparate elements. For example, the knowledge interaction model to be discussed next outlines how universities can facilitate the personal, social and cognitive learning opportunities required to deal with local and global challenges. Reshaping HE, in accordance with globally-driven reflexivity, requires a meta-framework to navigate multiple conversations and establish meaningful aims. In this paper, we propose the concept of ‘knowledge interaction’ to assume the role of such a meta-framework.

A model of knowledge interaction
What is knowledge interaction? The authors argue that it is a meta-framework that encompasses learning identity, learning communities and lifelong learning. Focusing on these overlapping learning paradigms is a way of mapping the awareness, engagement and understandings of HE actors and stakeholders. Charting current personal, social and cognitive learning processes allows for an overview of identity, scope and potential. The purpose of a knowledge interaction framework is to deal with the ‘supercomplexity’ (Barnett 2000) that characterises a world in which our frameworks are continually subject to challenges and opportunities.

Figure 1: Knowledge interaction model

Figure 1 depicts the interrelationship of learning identity/personal learning, learning communities/social learning and lifelong learning/cognitive learning. These three crucial elements contribute to the ongoing process of knowledge interaction. This links to what Barnett & Coates (2005) identify as three universal challenges within a changing world: knowing, acting, being. Figure 1 is a holistic view of knowledge interaction, connecting all aspects that contribute
to the process of accessing, developing and synthesising knowledge. This can be equated with what Barnett (2000) outlines as knowledge possibilities, knowledge settings and knowledge processes. A systemic view of learning by the OECD (2007) highlights learning opportunities as part of a connected system covering the whole lifestyle: focus on the centrality of the learner; attention to developing the capacity for ‘learning to learn’; multiple objectives of education policy – e.g. personal development, knowledge development, economic, social and cultural objectives. The knowledge interaction model aims to outline the holistic and systemic aspects of learning. Personal learning, social learning and cognitive learning are overlapping contexts that formulate the potential learning identity, learning communities and lifelong learning aspects of actors and stakeholders in HE.

- **Personal learning**: an individual’s conscious and subconscious understandings and approaches to learning. A person’s belief in their capabilities determines how they think, act, feel, behave and motivate themselves (Bandura 2008). Krathwohl (1964) discusses the affective domain of receiving, responding and valuing – and how this relates to growth and learning. Personal learning is integral to the growth of learning identity – as well as influencing the limits or extents of social and cognitive learning. HE has started to focus on capabilities related to personal learning and awareness which can foster and facilitate social and cognitive learning.

- **Social learning**: the formal and informal process by which individuals engage with, and learn from others – be it friends, family, work or community. The notion of ‘communities of practice’ (Wenger 2008) relates to groups of people who share a concern or a passion for something they do and learn how to do it better through interaction. Learning is an interplay between social competence and personal experience; it combines personal transformation with the evolution of social structures (Wenger 2002). According to James (2007) higher education is about the ‘co-production’ of outcomes. Social learning is vital to the success and achievements of learning communities. Therefore, the process of enhancing social learning in HE could increase engagement and responsibilities - within and across learning communities. Barnett & Coates (2005) describe how diversity has led to stratification and the global context requires new forms of engagement with the wider world.

- **Cognitive learning**: how an individual selects, applies and utilises their knowledge. This relates to Bloom’s (1956) taxonomy that illuminates cognitive levels: knowledge, comprehension, application, analysis, synthesis and evaluation. Cognitive learning is an important aspect of HE and forms the foundation of the development of metacognition and lifelong learning. Metacognition – learning how to learn – is vital for independence, achievement, and success within personal, social and lifelong learning.

We have coined the term ‘knowledge interaction’ to emphasise that these active components of knowledge are interactive. Barnett & Coates (2005) describe the ‘act of knowing’ as active, dynamic, in a state of flux, socially developed, an act of identity and claim to ownership. Knowledge transfer and knowledge production are valid terms, but have static and finite connotations. Knowledge interaction has more fluid aspects.
Discussion

HE actors and stakeholders

Charting the identity, scope and potential of participants within and across HE learning paradigms aims to provide an objective, overall perspective from which to articulate discussions, plans and goals. This view can then be used to discuss how frameworks, tests and challenges can be understood and negotiated amongst multiple parties. An Australian study (McKinnon, Walker, and Davis 2000) outlined how good university leadership brings together the aspirations and thinking of the whole university. The interrelationships of HE actors and stakeholders form planned and unplanned activities and interactions. Barnett (2003) describes how universities are caught in webs – strands linking them to economies, states, other universities, epistemologies and professions. This notion of interlinking and merging of values and ideas fosters new conceptions and concerns. King (2004b) outlines how this international exchange of people leads towards the development of truth - rather than just a transmission of that already known and accepted. Within this scope, participants should be aware of how their personal, social and cognitive learning may grow and adapt. Barnett (2000) calls for actors to understand the changing features of their environment, constituencies and manifold value systems.

The identity of HE actors and stakeholders needs to be clarified within a system which has an increasing number of diverse and competing voices. Duke (1999) outlines how lifelong learning has implications at the macro, meso and micro levels of HE: diversity and complementarity between universities; change in clientele and mode of provision; changes to the curriculum and notions of subject matter and competencies. The authors discuss these levels:

- **Micro-level** The micro level includes students and academics whose identities and roles are evolving in our globalised society. Ever increasingly, students are becoming consumers of education and influencing the diversity and range of learning opportunities available: “Students are becoming more demanding in terms of the quality and convenience of learning opportunities” (Go8 2007, p. 17). These changes require academics to reflect upon how they organise, design and deliver their learning and teaching opportunities. Henkel (2000) describes how a more structured environment is encouraging new academic identities. As a result of the identity and expectations of students having changed, academics’ identities are also changing due to the increasing responsibilities and pressures in the form of performativity and accountability.

- **Meso-level** The meso-level that incorporates HE institutions needs to balance both market and educational values. “Massification and the associated trend towards more open entry to university challenge assumptions about what constitutes readiness for university…How these issues are manifest at institutional level depends very much on where institutions are located along the continuum from ‘recruiters’ to ‘selectors’”(James 2007, p. 7).

- **Macro-level** The macro-level is a composition of our changing society, culture and economy. How do we manage these competing voices and values of actors and stakeholders in HE? Barnett (1992) outlines four essential purposes of HE: student development, institutional self-determination and responsibility, research/culture of critical discourse, accessibility. Engagement and progression of these purposes requires genuine degrees of consideration, thought, interaction and application in the face of local and global challenges. Edwards (2004) lists the expectations of modern universities as being: widening access, lifelong learning, emphasizing applied research, acting as economic agents, reducing social exclusion.
The potential of HE actors and stakeholders depends upon identifying the gaps and opportunities that exist within the HE scope of interrelationships. The potential of individual actors and stakeholders depends on their ability to establish their identity in an increasingly interconnected and interdependent world. Values and issues relate to different identities and influence the discussion and negotiations that take place in a field. How these discussions take place depends on the quality of communication. Barnett (1992) argues that there are four communication structures affecting higher education: i) academic world - internal to individual disciplines; ii) social and work worlds: internal to social organisation; iii) academic world - external to individual disciplines (multidisciplinarity; interdisciplinarity); iv) social and work worlds - cross-organisational, i.e. societal (intermeshing of personal, social, industrial, professional and pressure groups). How actors and stakeholders communicate in HE is crucial for the development and achievement of knowledge interaction. Effective communication establishes successful learning communities which can then structure environments that facilitate knowledge interaction.

Quality
Striving for quality within universities has become a common aim. Awareness of quality, engagement with quality - and understandings of quality differ according to the various actors and stakeholders in HE. How conceptions of quality are discussed, plus how developments for quality are negotiated will impact strongly upon the approaches to quality undertaken at HE institutions. We propose that the knowledge interaction framework has the potential to inform this process and assist in promoting valued dialogue and reasoned developments.

![Figure 2: Knowledge interaction for quality](image)

Figure 2 shows how the aspects of learning identity, learning communities and lifelong learning within the knowledge interaction framework can contribute to articulating and developing quality within HE, as well as designing future directions.
Learning identities The identity of quality in HE stems from personal learning. HE actors and stakeholders have diverse and competing conceptions of quality based on their background, experiences and expectations. Mapping the learning identity of HE actors and stakeholders provides information about the ethos and nature of differing expectations of quality. Cataloguing types of awareness can inform dialogue within learning communities, as well as designs for lifelong learning.

Learning communities The scope of quality in HE arises from social learning - the actions, engagement and responsibilities of actors and stakeholders. The types of contributions and intentions within learning communities are characterised by both implicit and explicit responsibilities. Charting the flow of quality aims and implementations amongst actors and stakeholders highlights the existing range of activities arising from traditions and goals. The process of social learning can then be targeted to facilitate relationships and dialogue about alternate, revised or new engagements with quality, as well as responsibilities for quality.

Lifelong learning The potential quality in HE depends upon cognitive learning - reshaping and designing future directions. This could be achieved by increasing metacognition about quality for the range of actors and stakeholders. Focusing on learning how to learn, and lifelong learning has the potential to strengthen the foundations, reshaping and future of HE. The processes of cognitive learning, and higher order counterparts – critical thinking, problem solving and creativity - are required to formulate new directions, developments and designs across the HE spectrum.

So what does ‘quality’ mean? How actors and stakeholders conceptualise quality is one of three layers in awareness of, engaging with, and understanding quality in HE. Increasing awareness of how conceptions of quality vary is crucial for fruitful knowledge interaction to take place. It is part of the personal learning, or learning identity aspect of the knowledge interaction framework. Barnett (1992) views quality as an amalgam of alternative concepts, springing from different interests, lives and shifting social currents of the age – these competing voices include: technicist, collegial, epistemic, consumerist, employers, professional and inspectorial. Increasing awareness of varying conceptions of quality is the ontological aspect of the knowledge interaction framework.

Who is responsible, and how do we engage, for quality in HE? The responsibilities, contributions and benefits of quality impact all HE actors and stakeholders. It is the second layer in awareness of, engaging with, and understanding quality within HE. Barnett (1992) argues for a stage of quality maintenance that is one of engagement. There are both distinct and mutual responsibilities in HE which need to be highlighted and comprehended – and this is part of the social learning, or learning communities aspect of the knowledge interaction framework. According to James (2001) students are ‘co-producers’ of quality; student expectations have a bearing on their motivation and satisfaction – and as a result influence the quality of HE. Barnett (1992) believes that the maintenance and improvement of quality are the shared responsibility of every person in an academic institution. Articulating the quality issues and facilitating the processes required by different actors and stakeholders is the epistemological aspect of a knowledge interaction framework.
What approaches should there be towards quality? The approaches towards achieving quality in HE require the critique, analysis and synthesis of actor and stakeholder contributions. It is the third layer in awareness of, engaging with, and understanding quality in HE. Barnett (1992) distinguishes between relativist, objectivist and developmental approaches towards quality; the relativist and objectivist approaches are external, summative viewpoints, whilst the developmental is an internal, formative review. There needs to be a balance and amalgam of both internal and external viewpoints of HE actors and stakeholders. A multi-faceted approach to quality creates a foundation whereupon engagement, respect and responsibility for quality is understood and developed by all participants.

*Lifelong learning*

Lifelong learning has become an important aspect of our knowledge society. The OECD (2007) notes a need for continuous renewal and updating of skills, and also notes that the distribution of learning opportunities is quite uneven. The knowledge interaction framework provides a lens to highlight opportunities and gaps amongst HE participants that could develop lifelong learning.

![Figure 3: Knowledge interaction for lifelong learning](image)

Figure 3 shows how the aspects of learning identity, learning communities and lifelong learning within the knowledge interaction framework can contribute to articulating and developing lifelong learning in HE, as well as designing future directions.

- **Learning identities** The identity of lifelong learning in HE stems from the awareness and conceptions of lifelong learning amongst actors and stakeholders. How lifelong learning is understood on a personal learning level needs to be articulated and discussed. This dialogue can then be used to identify gaps and opportunities for instilling lifelong learning principles and practices on a personal level, leading to stronger and more self-aware learning identities.
Learning communities The scope of lifelong learning in HE arises from the past and current relationships between actors and stakeholders in regards to responsibilities and engagement. Gauging and specifying how learning communities respond to lifelong learning provides an overall perspective that can be utilised to monitor and modify social learning.

Lifelong learning The potential of lifelong learning in HE depends upon innovative development of metacognitive skills – such as creativity and problem-solving – which potentially revitalise, inform and improve the lifelong learning agenda.

How HE actors and stakeholders can contribute to the development of lifelong learning at different levels is an achievable strategy that is vital to discuss. The levels of awareness include: student, academic, institutional, business and industry, societal.

What does lifelong learning mean for students? Traditionally, formal learning has been characterised by a set of rigid educational hurdles. Lifelong learning is more fluid and characterised by a diverse array of accessible educational opportunities. The massification of universities has compounded discussions about the changing identity of students: “one obvious outcome of massification is that students’ levels of prior academic achievement are spread more widely and more students are entering university with lower levels of accomplishment” (James 2007, p. 6). This change in access to education, student ability and identity should be acknowledged and form part of the reshaping of HE.

What does lifelong learning mean for academics? This mass access to, and diversity of studies available, has placed increased pressure upon academics. According to James (2007) massification has shifted the predominant focus from prior achievements to value added during higher education – thereby eroding traditional reference points for standards. Wood and Solomonides (In press) highlight how student transitions and contexts relate to discourse, identity, learning and content; they suggest a focus on graduate capabilities which value the different phases within the learning journey. The process of developing lifelong learning requires the development of graduate capabilities through the re-examination of learning and teaching approaches. Barnett & Coates (2005) describe how dispositions and capabilities appropriate to fluidity can hardly be forthcoming unless curricula are characterised to some extent by fluidity.

What does lifelong learning mean at the institutional level? The identity of HE institutions need to be reshaped to incorporate the vision and reflexivity that facilitates and encourages lifelong learning. According to Scott (1995) the mass university has managerialism and reflexivity as its two organisational characteristics. A European vision of HE outlines an ethos that will:

‘facilitate mobility of students, graduates and higher education staff; prepare students for their future careers and for life as active citizens in democratic societies, and support their personal development; offer broad access to high-quality higher education, based on democratic principles and academic freedom.’ (Bologna 2008)

The onus is on HE institutions to provide access to high quality education – and to facilitate personal and career development in view of global opportunities: “A university degree is now expected to be a global qualification and universities are accrediting students for life and work in an international context” (James 2007, p. 8).
Industry is realising the importance of lifelong learning. An OECD report states: “For the individual, lifelong learning emphasises creativity, initiative and responsiveness – attributes which contribute to self-fulfilment, higher earning and employment, and to innovation and productivity” (2007, p. 10). Aspects of changes in the workforce are soon to be mirrored in HE: “The organisation of higher education still largely reflects the mass production model. We can expect a shift towards more personalised and flexible provision” (Go8 2007, p. 17). Lifelong learning is a crucial aspect of adaptation and innovation as workplaces continue to change. Industry will expect not only discipline specific knowledge from graduates – but also evidence that they have the capabilities to contribute and adapt to the organisation. According to James (2007) the need for portable, transparent statements of attainment have resulted in the trend towards e-portfolios and diploma supplements. Lifelong learning will be a considerable proponent to gauge and value in an ever-increasing global and competitive workforce.

What does lifelong learning mean at the societal level? Barnett & Coates (2005) maintain that the world is seen as changing in fluid and unpredictable ways and that these challenges require a continual capacity for remaking the self. According to King (2004b) governments view HE teaching and learning as a means of reasserting national goals – no longer the creation of a national elite culture but more the formation of human capital. Moreover, for the economy there is a positive relationship between educational attainment and economic growth (OECD 2007).

**Creative capability case study**

How to articulate and implement creativity as a graduate capability in an Australian university is being researched by the authors. Interest in the place and process of creativity within higher education has been burgeoning (Jeffrey and Craft 2001; Reid and Petocz 2004; Jackson 2006). Graduate qualities are increasingly viewed as important in Australian HE (DEST 2004). Bowden et al (2000) believe that there are three reasons why capabilities have become more prominent - the role of the university to provide good citizens, the unknown future and employer expectations. Many universities have adopted creativity as one of their graduate attributes/capabilities. Below is the model for facilitating knowledge interaction for creativity.

![Figure 4: Knowledge interaction for creativity](image-url)
Awareness of creativity, engagement with creativity and understanding creativity is being investigated by the authors who are based at Macquarie University, Sydney Australia. The knowledge interaction model (Figure 4) outlines a process by which learning identities, learning communities and lifelong learning can articulate and develop creativity – as well as design future directions.

- **Learning identity** Personal awareness and conceptions of creativity are being gathered from HE actors and stakeholders (students, recent graduates, lecturers, employers and professional association representatives) in Sydney, Australia. This information will be used to identify interpretations of creativity across the spectrum of HE stakeholders in three professional disciplines: design, accounting and law.

- **Learning communities** Social engagement with creativity will be analysed by gathering unit outlines and examples of learning and teaching activities from a range of discipline areas at Macquarie University. This will chart perspectives on how creativity is taught, practiced and assessed. Examining the outlines will highlight whether developing creativity is explicit or implicit within the discipline area, as well as illuminating where responsibility for, and engagement with, creativity takes place.

- **Lifelong learning** Cognitive understandings of creativity will be investigated once the data is gathered. Awareness and conceptions of creativity, as well as the learning and teaching practices will be examined. This it to identify gaps and opportunities for enhancing higher order learning – such as creativity, problem solving and meta-cognition. A study exploring how universities in New South Wales are developing creativity will highlight best practices and add to the discussion, development and implementation of future directions and dynamics.

**Conclusion**
The purpose of the knowledge interaction framework is to highlight the learning identities, learning communities and lifelong learning aspects of HE actors and stakeholders. The analyses discussed in this paper – about quality, lifelong learning and creativity – show how the model can be used to articulate, develop and design future directions for trends and issues in HE. According to Scott (1995) there has been a transition in HE from elite to mass forms, as well as shifts from a conception of innovation as dominated by experts to an emphasis on the creative role of users and other stakeholders. Evolving challenges and aims within HE will not be genuinely addressed or implemented unless HE actors are informed, engaged and active. The knowledge interaction framework suggests a model that promotes an holistic and systemic ethos towards learning. It incorporates what Barnett and Coates (2005) outlines as the three universal challenges within a changing world: knowing, acting and being. Personal, social and cognitive learning must be inclusive and interactive to produce effective learning identities, learning communities and lifelong learning.
References


Go8. 2007. Seizing the opportunities: designing new policy architecture for higher education and university research: Group of Eight.


**Biographies**

- Teresa Swirski is a PhD student at Macquarie University. She is researching ‘Developing Creativity as a Graduate Capability’. Contact: teresa.swirski@efs.mq.edu.au
- Dr. Ian Solomonides is the Acting Director of the Learning and Teaching Centre at Macquarie University. Contact: ian.solomonides@mq.edu.au
- Dr. Leigh Wood is the Associate Dean of Learning and Teaching within the Faculty of Business and Economics at Macquarie University. Contact: lwood@efs.mq.edu.au