LIFELONG LEARNING IN POST COMPULSORY EDUCATION: A CRITICAL REVIEW OF CURRENT POLICIES AND TEACHING PEDAGOGY FOR FURTHER EDUCATION

GRANT W. RALSTON

Lifelong learning in post compulsory education: A critical review of current policies and teaching pedagogy for Further Education

Supplementary material for University of the Highland and Islands [Perth]

Author

Dr Grant W. Ralston

Telephone +44(0) 7548201116

E-mail: grant.ralston@live.co.uk

Table of Contents

Overview

The primary objective of education is for students to learn but ensuring each individual is learning presents a challenge for the educator. The approaches of maximizing learning in the interpretations of many educationalists is via personalised tuition. Some academics (Cornelius and Gordon., 2008; Verkroost., et al. 2008) have debated that the traditional classroom may not deliver this and recommends a blended learning approach incorporating technology. Whilst technology creates a more enhanced experience for the learner it places additional pressure on the educator. Within an oversaturated timetable and the scrutiny of the awarding bodies verification procedures, development of such modes is neglected by some. The replacement of the traditional scheme of work requires comprehensive training and time to enhance skills that some institutions do not fully facilitate.

It is rational to assume that fostering a variety of teaching approaches that use current technology would help to enhance the 'experience' of each learner. Prensky, (2001) presented the case for a new generation of learners, commenting that this new generation was essentially different from any that traditional educators have seen before. The ´digital natives´ spend their entire lives integrated within "computers, videogames, digital music players, web cams, mobile phones and other tools of the digital age" (Prensky., 2001a, p.1). This is in contrast with some educators that may lack proficient technological literacy. These so called "*Digital Immigrants*" as Prensky (2001a) states that traditional educators pose a significant problem within today's education system. This is due to the educator having differences in their core skill sets with preferences and skills that did not characterize the requirements needed for the ´Digital Natives´ and are unsuited to the current practices of the traditional educator. Tapscott., (1998) stated that education in developed countries as already in crisis with further challenges "*there is growing appreciation that the old approach [of didactic teaching] is ill suited to the intellectual, social, motivational and emotional needs of the new generation*" (p.131).

Section One

Introduction

Scotland traditionally has been regarded as one of the best educated societies in the developed western world. This has been recognised from the 17th century, with the Church of Scotland and other educational institutions ensuring learning was accessible to any social class. A review of historical evidence however, determined that Scotland did not fully embrace or overcome social diversity. Some questioned the democratic system, declaring an inequality existed and the system created a half educated nation that failed to address the needs of the population (Anderson, 1983). This failure to embrace social diversity produced private schools that the '*higher class*' funded that promoted social class disparity. As a consequence, impoverished areas established the 'uneducated child workforce' with deprived families forcing their children to 'earn rather than learn' (Smout., 1986, as cited by Knox, 2014).

Paradoxically, the secondary education system was preserved for the "*middle class*" and the lack of subsidised education ensured continuing social stratification. This view of education, fortified social exclusion with 'higher class' forming academies, and only 5% of the working and "*lower class*" accounted for secondary school admissions in the 19th century (Knox, 2014). This forced the "*lower*" class to pursue unskilled labour, whereas the '*higher class*' through financial protection enhanced their future via education. The 20th century did not readdress social class prejudice but formed an important agency for social welfare for families. The education system unfortunately, was separated into two categories: the academic child assigned for professional status via university; and the non academic child that lacked the mental resilience or proficiency and destined for manual labour of the "*under educated*" (MacPherson, 1992).

There is still the paradigm that social economic class determines the level of educational attainment. This is one fundamental area within society that policy makers are continuing to challenge. This paper critically reviews the interrelated effect educational policies via Scottish executive have when challenging social deprivation through lifelong learning. The key drivers and influences that encourage individuals from impoverished

communities to enter post compulsory education are reviewed. This section discusses whether these hierarchy policies cascade through to educational pedagogy within lifelong learning.

Scottish Executive Policies in Education: Inclusion and Lifelong Learning

The Scottish Executive's promotion of lifelong learning in education, aims at widening access to underrepresented groups. These policies theoretically enable individuals from a diverse range of backgrounds to benefit from opportunities that post 16 education create. Coonan., (2000) stated that these policies concerning lifelong learning have intersecting aims; (1) improve economic competitiveness locally and nationally; (2) reducing social exclusion. Lifelong learning within Scotland has been characterised in policy terms as a key driver for improving economic effectiveness and social solidity. The Scottish office (1998) outlined the need to make Scotland a learning society. With Dewar (1998) stating that "*learning is a vital element of a successful, healthy, vibrant and democratic society*" (Speed and Hartfree, 1998).

At local level, learning initiatives (Scottish Office; 1998) has seen Glasgow produce strategies that addressed a number of issues including poverty and increasing skilled workforce within areas of social deprivation. There have been developments in certain areas, namely gender and ethnic minority representation. While acceptance of post compulsory education strategies for increasing opportunities of skill development. Others have condemned the discourse of lifelong learning as nothing more than the development of human capital rather than creating effective citizenship (Gorard, 2000; Murphy, 2000). These debates towards lifelong learning and human capital have raised awareness of government based policies towards the different learning agendas.

The Organisation for Economic Co-operation and Development (OECD) defined human capital as "*the knowledge, skills, competencies and other attributes embodied in individuals that are relevant to economic recovery*" (OECD, 1998). The emphasis of skill development and the preparation to contribute towards the labour market may sequester marginal groups (single parents, unemployed, mature adults). Coffield, (1998) suggests that education is now an unofficial pyramid of learning and can be considered as learning for earning. This human capital theory views education as a form of investment or consumption. As a result, it would therefore disregard social justice and social cohesion for social capitalisation. That said, increasing access to H.E. provision has been a cause for concern for

the Scottish office. This was acknowledged with the production of the lifelong learning publication (1998) accepting its social responsibility, stating that "the Government is committed to the principle that anyone who has the ability to benefit from further and higher education should have this opportunity to do so (Scottish Office; 1998a, section 6.19). In addition, the Scottish Higher Education Funding Council (SHEFC) supported this action and ensured that widening the entry to higher education institutions for underrepresented groups that the sector should seek to address. This was supported with ring fenced funding for a four-year period that enabled migration of individual's movement from further to higher education.

The current policy to lifelong learning attempts to broadening access to educational opportunities. The Garrick committee (NCIHE., 1997) restated the long standing belief that Scottish Further and Higher Education has an enhanced access record for the young and individuals with marginal qualifications. However, Osborne, (1999) disputed this when comparing the Higher Education Statistics Agency data to the rest of the United Kingdom and confirmed that Scotland was no different to the rest of the country. The HESA data indicated that accessibility of higher education courses was offered in further education colleges in Scotland (40% vs 26 % for the rest of the UK). This demonstrated greater access for underrepresented groups including socially deprived.

Barriers to Participation in Higher Education by Lower Social Class

Historically Scottish universities were considered to be less elitist than English universities and that working class people could access '*higher class*' education. This lead to 18.6% of Glasgow University student population coming from working class. The influential book '*The democratic intellect*' by Davies, (1961) as cited by Anderson, (1983) had altered statistics from the Argyll commission (1897) report. This showed that 25% of students had parents from skilled employment with more financial support. The reality of social class articulation lead to students from unskilled family backgrounds being an under represented group within universities. Even with the interventions from parliament; Arts, Medicine and Law were still deemed for careers for the middle class.

The social economic barriers that once prevented lower class individuals from entering higher education may still be evident today. There still is a significant misrepresentation in

education from lower social class. Despite the rising numbers, data collected from UCAS on H.E. entrants from 1994-to-1999 suggests that the proportion of lower class accessing H.E. is 15%. This represents a minority group and this pattern has not improved within this timeframe. Tinklin, (2000) conducted a multi-level analysis assessing the influence social background on application has with gaining entry into higher education from Scottish school levers cohort. The data was collected from the Scottish School Leavers Survey (SSLS) indicating that individuals from lower social class are disadvantaged. This institutional disadvantage is at three stages in the admission process including qualifications, application and also within entry. Tinklin, (2000) indicated that socially deprived groups have obstacles not merely at an individual level but also at institutional level no different from that of previous generations.

Education literature have acknowledged that issues surrounding articulation in H.E. and certain F.E. courses by lower social class maybe related to the wider issues of inequality within society. According to Foskett and Hesketh, (1996) parents that obtained awards from H.E normally gain employment in higher status jobs and this experience of education is viewed as a positive one. This therefore creates an encouraging influence on their children with support, nurture and guidance given towards educational attainment. However lower social classes may have had negative experiences of education or limited opportunities due to social and economic constraints. This therefore could create alienation towards education as individuals may view these institutions as not for their social classification. Seeking unskilled labour or even withdrawing from education early obtaining no formal qualifications.

Categorisation and Marginalisation of Educational Social Class

There remains evidence of social class categorisation and institutional marginalisation within higher education. Robertson and Hillman, (1997) emphasised, that it is not merely raising the educational attainment of these underrepresented individuals but that H.E. establishments needs to readdress the "*exclusiveness*" of gaining these academic qualifications over the less traditional pathways (HNC/D, SVQ, NVQ). According to Lowe, (2005) as cited by Cannell and Thomson (2010) H.E. in colleges has specific vocational characteristics that allow employment progression or career change. The introduction of the Scottish Credit and Qualifications Framework (SCQF) in 2003 linked HNC/D's towards H.E. This was an attempt to '*level*' to year one and two of the Scottish undergraduate degree programmes. MacLennan et al., (2001) states that many Scottish universities are unwilling to recognise or give full credit

for F.E. to H.E. transfer, that would allow entry at year two or three. Osbourne., et al (2000) raised concerns from this credit system stating that "*H.E. level credits achieved in F.E., despite attempts to create credit transfer systems, are not equivalent to those found in Universities* ". Metcalf, (1997), commented that individuals that gained modern awards (for example NVQ's) rather than traditional qualifications had indirectly reduced the potential of gaining entry into higher education. Furthermore, individuals from socially deprived backgrounds have a tendency to gain these modern qualifications that increase employment opportunities locally and within their own communities.

Participation in Post Compulsory Education: Barriers and Challenges

The discussions with lifelong learning may however disregard individuals from socially deprived areas in Glasgow. Areas such as Govan and Easterhouse in the west and east of the city where long term unemployment, crime and low skill sets based upon unskilled labour may be excluded from government policies. Putnam, (1996) stresses that lifelong learning and social capital should seek to address three important components; (1) increase community networks; (2) address community norms whilst developing identities; (3) develop trust and relationships with these communities and individuals within them. With this approach it may enable community policy partnerships to be an effective method to create an alterative vision of learning society within communities. These communities may influence young people's behaviour, as communities of lower educational attainment were less likely to enter further or higher education as these where not the social norm. Furthermore, the communities' mean level of education and employment rates influence entry into further and higher education.

At local level large sections of society continue to face complex and interconnected challenges that prevent entry to education due to social impoverishment. These structural barriers from areas of social deprivation include; economic cost of attending further education; public transport; poor housing in which to study; lack of educational infrastructure within the communities (Steele, 1999). These barriers may place potential learners in a position where they cannot engage in the learning process. Gallacher et al., (2000) research shows that individuals from socially deprived areas have a complex myriad of barriers that prohibits them to enter into lifelong learning. These barriers could be formed from an early age with negative experiences of school and authorities. There are fundamental differences in culture within these communities with families and peers statistically more likely to withdraw early from schooling

and not re-enter into education. Within these areas, youths have territorial boundaries that permit or inhibit them from entering education facilities. This territorialism in the youths of areas such as Easterhouse make violence an issue if they cross internal boundaries. Within education this is evident within the high school. Where groups form social identities, leading to territorialism with young male youths prevented from leaving there own 'schemes' due to fear of violence.

Motivations for Learning in Post Compulsory Education

Individuals from these communities that overcome barriers and embark upon education, are driven by a range of factors. Cloonan and Crossan, (2000) research, guide towards issues of attempting to gain employment. These drivers are based at local level and most male respondents attempt to gain employment locally. The males in the study communicated the desire to learn as a means to be directly linked to employment with the potential of having a '*living wage rather than minimum wage*'. Unfortunately, there appears to be a degree of pessimism regarding males developing and enhancing skills with qualifications to gain employment in well paid jobs. Reeve et al., (2009) provides evidence that students that enter into HN programmes as a transitional pathway for progressing into H.E. The need to gain compulsory qualifications (HN) and required for being able to perform the job were some responses given for this trend towards progression. That said, some individuals did not have the opportunity to select these courses and that the employer chose the course. Additional issues were raised regarding the enhancement of skill sets in which to augment career prospects was stated. This reflects Coffields, (1998) "*learning for earning*" analysis and the need for these individuals to develop their own individualised human capital. Both male and females that entered education wanted learning to steer to better employment opportunities.

The focus for those that were questioned were courses that directly linked to employment within their own local areas. However, many when questioned whether employment would pass these local individuals by and directly go to "*white settlers*". Byres, (1999) evaluates the recurring pattern of unemployment, underpaid, flexible work and the fluctuations of the economy and gained employment steer these individuals to be pessimistic regarding career development. It is understandable that with the constant pressure of redundancy and constant retraining within education that they would be cynical and also feel alienated. This then brings into question the justification of lifelong learning and its direct

influence towards fulfilling the individual's fundamental requirements. It maybe that lifelong learning is about ensuring that individuals develop their own human capital in which to gain employment rather than increasing knowledge in which they can develop life skills. That said, other individuals view post compulsory education as the development of their own social capital. Many individuals develop life skills including development of confidence and learn important communication skills, form social relationships and networks with others. These skills help to form a more rounded and complete individual that could help readdress social cohesion within local communities.

Learning Individuals to Learn: Creating Positive Minds in Further Education

Within the F.E. learning environment, cultural and diversity exists and different learning strategies and approaches from theorists have been proposed regarding educational pedagogy. Amalathas, (2010) discussed the concept of learning to learn which may be applicable to help social deprived individuals prepare for life with appropriate variety of skills. Lucas and Greany, (2000) defined learning to learn as 'a process of discovery about learning (that) involves a set of principles and skills which, if understood and used, help learners to learn more effectively and so become learners for life.'

This concept therefore helps motivated individuals develop their own learning capacity by helping; self-organisation, enhance communication both verbally and written, teamwork, self awareness and self accountability. This theoretically aids in the tailoring of approaches to the learning context focusing on the individual's intrinsic needs. Claxton and Lucus, (2008) as cited by Cloonan and Crossan, (2000) argues that learners need to be positively guided towards a learning oriented model that helps individuals create positive beliefs and behaviours. This has been referred to as '*Learning Orientated Habits of Mind*' with the development of essential skills that would help with learning processing. Learners are therefore allowed to explore and develop an inquisitiveness and discover enjoyment through '*healthy skepticism'*. This ensures that these learners have the skill sets to question issues or subject areas they are not accustomed too. This helps to establish mental resilience and explores and investigates information in a more systematic approach. This development of reasoning and willingness to reflect and generate self awareness allows formation of a positive mind-set. By constructing the community classroom that addresses social diversity through the different modes of communication and team work, will produce social acceptance from difference social class.

James and Pollard, (2006) provided supporting philosophies that seeks to ensure that the educational facilitator or teacher equips the learner with transferable life skills. This supports the opinions of others regarding preparing the socially impoverished with creating identities that develop them personally and socially leading to greater contributors to society. Furthermore, the acquisition of skills should transform the individual into a valued active citizen. The teacher should attempt to scaffold the knowledge with activities that support individuals as they progress intellectually, emotionally and socially. The adoption of an array of learning strategies and practices will help to foster positive attitudes towards learning. The formation of a tutor learner relationship should be at the hub of the classroom community that allows individuals to understand that learning is a social and rewarding activity. The positive guidance and encouragement to work with others, develop and share ideas and importantly give them a voice in which they can express themselves allowing for personal growth and development. This can ultimately create a more complete individual with skills that can be transferred to anything in their life.

This method of learning however has little substantiating evidence in further education with evidence generated from schools and higher education. Nash., et al (2008) debates that limited research is available within F.E. in the context of education pedagogy and assessment. Nash., et al (2008) states that a number of obstacles needs to be overcome with lifelong learning. The traditional methods used for teaching and learning have been widely prescriptive and are driven by summative assessments that set targets in which to measure individual's performance. This is rather than the promotion and reinforcement through reflection on what has been absorbed. Vukman., (2005) explores the area of cognitive development and supports the belief that as individuals age they become more reflective and self aware. This development of a collection of life skills and abilities could therefore allow individuals from socially deprived areas to advance skill sets. Theoretically F.E. can help address the needs of the underrepresented groups who were disadvantaged in the compulsory education system. These individuals can be reignited with F.E. re-engaging the once detached learner. Considerable success can be made with challenging the once negative experiences of learning or bridge opportunities to allow development of learner capacity.

Section summary

The educational policies and models may be criticised for not recognising or addressing differences between communities and barriers that individuals face in accessing lifelong learning. Interestingly lifelong learning is presented officially as a voluntary activity that is associated with liberal adult education traditions. However, with initiatives such as New Deal and Training for Work may force young people and adults to enter formal learning through applied state pressure rather than intrinsic motivation. Approaches should be made at a human and social level to address social deprivation and increase individual's awareness of developing their own skill sets. Another important barrier towards entering back into education is that of the cultural stigma and the negative connotations of specific areas of residence. This cultural stereotype of socially deprived individuals being anti social can create further disconnection towards education. McGivney (1993) acknowledged that non participation within education is varied and that it different areas require different strategies to address these complex issues. This brings into question what the role of F.E. has within society, if it is as a means to proliferate human capital in which to grow the economy or whether the purpose is to enhance social cohesion. Further education can help and encourage learners to succeed and allow them to understand that these once previous negative experiences were not necessary due to personal failure and that learning can be both enjoyable and valuable. Further education has the undertaking of addressing the needs of those individuals from the most impoverished areas of society that have gained the least from their past educational experiences.

Section Two

The 'Inverted Classroom Model'

The primary objective of education is for students to learn. This is developed through educators identifying the learning needs and capabilities of each individual learner. This is achieved by making instruction and personal communication relevant and meaningful whilst providing a framework of formative and summative assignments that paces the learning journey (Keefe, 2007). The methods of maximising learning in the views of most educators is via personalised instruction (**Figure 1**). This goal of personalised instruction removed the traditional models of education. Some researchers (Cornelius and Gordon 2008; Verkroost et al. 2008) have argued that the traditional classroom may not provide this and has led some to recommend a blended learning approach that incorporates technology in an effort to '*invert*' the classroom.
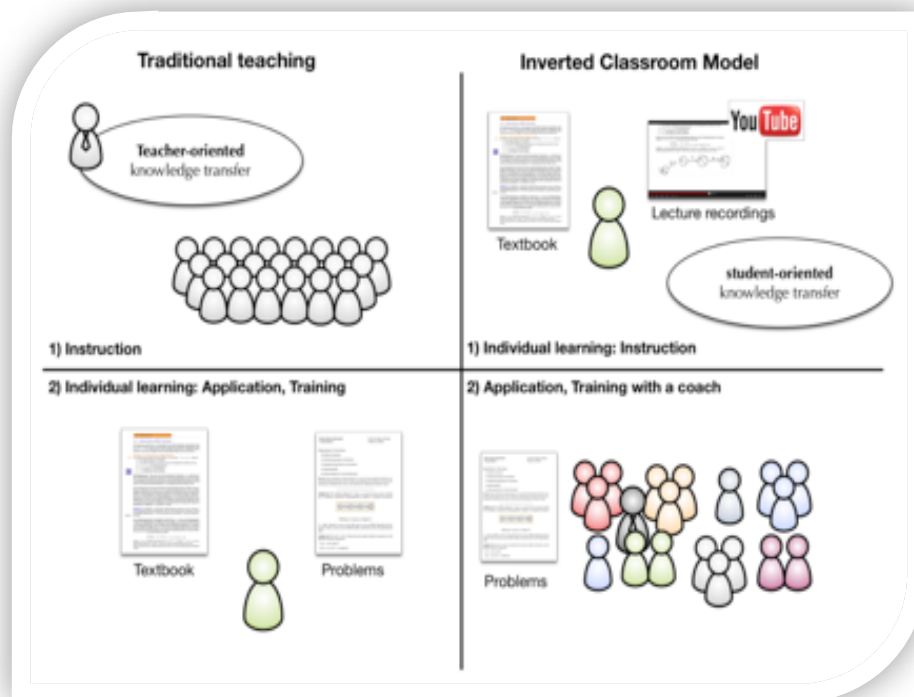

Figure 1. Application of the 'Inverted Classroom Model'

The use of technology is intergraded within the further education (F.E.) framework. Technology within F.E. has allowed educators to restructure their classrooms in innovative ways that address different learning styles. The "*inverted classroom*" is one such model that guides the lecture externally and redirects study and active learning activities within the class.

There is an apparent need by many educational institutions to alter the instructional style from the traditional lecture to a more active, student centred method. This is via the use of collaborated learning, experiments, active discovery and group presentations (Baker, 2000). Lage and Platt (2000) stated that the increased availability of web based instructional technologies from the late 1990's assisted in learning including Moodle, Blackboard and Web CT. This therefore provides students with online access to course content via digital media and online presentations. However, some educators fear that this approach may result in reduced course content if active learning is implemented within the class environment.

The 'Inverted Classroom Model' (**Figure 2**) provides active learning opportunities inside the class. Thus creating an enhanced and in depth learning experience rather than superficial learning. The present-day teaching methods employed by some F.E. lecturers are via the use of PowerPoint presentation for course content. Conversely, Clark (2008) states that the use of PowerPoint is only an affective medium if it provides a stimulating and interesting experience. For some students the use of PowerPoint may be an ineffective method towards learning and if this can be placed online will allow the F.E. educator to '*teach*' in a personalised manner. This employment of a range of activities lends themselves towards the fitness student. The combination of online academic media and in-class active practice may augment the learning experience and improve student attainment.
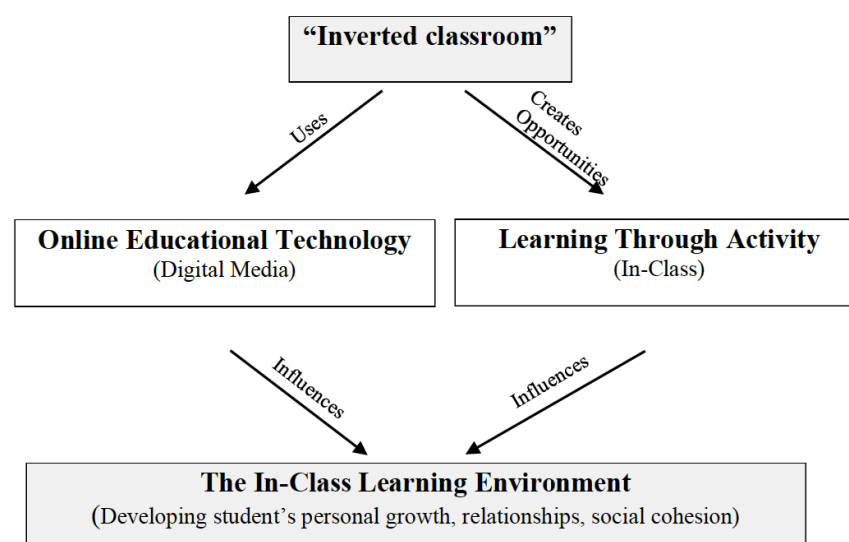

Figure 2. Theoretical framework of the 'Inverted Classroom Model'.

The 'inverted classroom' uses educational technology to externally deliver the direct 'taught' component of the class and is central to this model. **Figure 2** (above) details the conceptual framework with both online digital media and active learning fundamental in the learning experience. It is envisioned that the students therefore would have the opportunity to engage within the class and the lecturer guiding the learning. This change from the traditional method of delivery, is a significant departure from the direct lecture- home work sequence. There is anecdotal evidence that supports moving in a different path from the traditional approach within the physical classroom. Where the deeper learning occurs externally through homework. The "*inverted classroom* " has the introduction externally and the active engagement occurs inside the class environment (link to screencast demonstration https://youtu.be/cldZm2fjWcw).

Review of Student Centred Learning Theories

Learning theories provide a pedagogical foundation in which educators attempt to understand learning. Each theory should consider the different situations, outcome goals and the student's perspective towards the learning process. Learning can therefore be dynamic and also multi-dimensional that crossover the main learning theories. Depending on the subject matter and the student learning style, instructional design will incorporate a combination attempting to create the optimal learning environment. Without the development and understanding of student centred learning theories the "*inverted classroom*" could not exist. The human interaction within the classroom is critical and provides the theoretical foundation for the implementation of the learning activities. Regrettably, some overlook the importance of this and conceptualise the "*inverted classroom*", based only on technology. The need for human interaction and experiences is built upon pedagogical theory and failure to consider this, may determine the success of the inverted class.
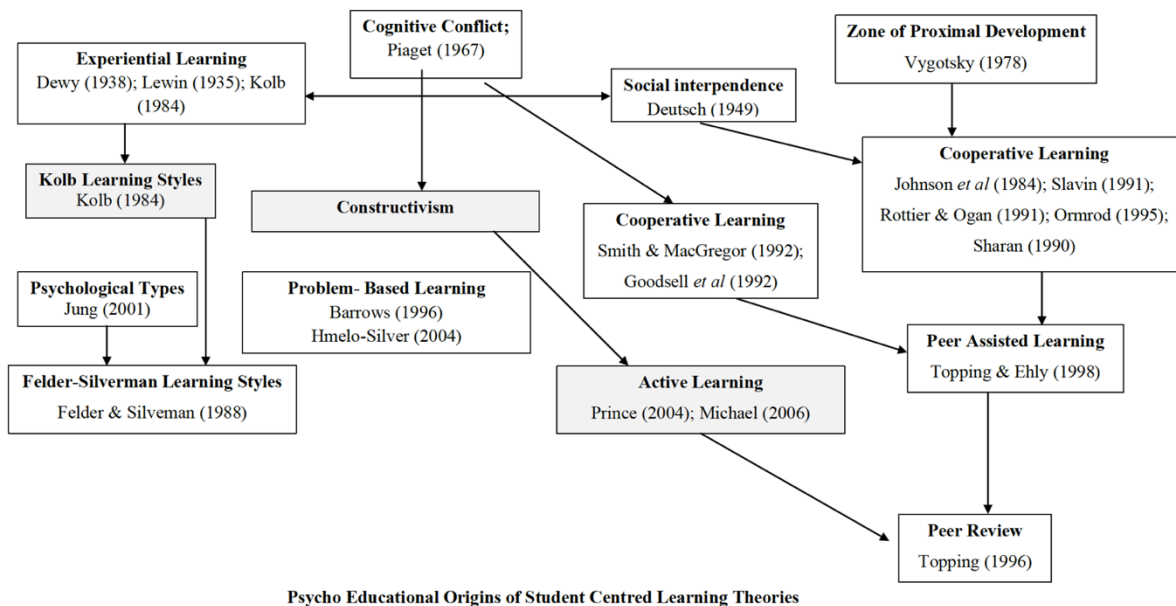
Psycho Educational Origins of Student Centred Learning Theories

Figure 3. The Psycho Educational Origins of Student Centred Learning Theories
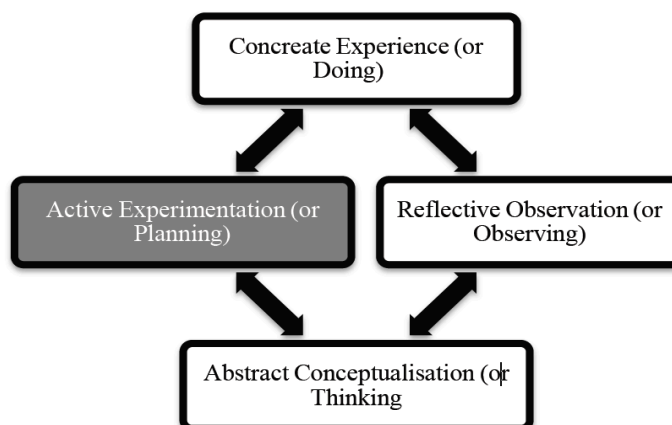

Figure 4. Kolb's 'Concrete Experience' experiential learning cycle.

Within academic literature there a several components that seek to explorer the learning process in humans, unfortunately this would require an extensive exploration that is beyond the scope of this review. **Figure 3** depicts the origins of student centred learning theories and identifies two theories that may help with the development of this model (Kolb's learning Styles and Active Learning). Kolb's (1984) experiential learning style theory is a holistic perspective that integrates experiences, perception, cognition and behaviour. Kolb (1984) believes that learning is a "process whereby knowledge is created through the transformation

of experience". This theoretical process presents a cyclic model of learning consisting of four stages (**Figure 4**). The student may begin the learning cycle at any stage but must follow each other in the sequence

Active Learning Theory

Active learning integrates within the student's personal development and is transformational in nature. Michaels (2006) defines active learning as *"The process of having students engage in some activity that forces them to reflect upon ideas and how they are using those ideas. Requiring students to regularly assess their own degree of understanding and skill at handling concepts or problems in a particular discipline. The attainment of knowledge by participating or contributing. The process of keeping students mentally, and often physically, active in their learning through activities that involve them in gathering information, thinking, and problem solving"* (p. 160).

Active learning acts both as a superset for peer assisted and problem based learning approaches. This forms important relationships that allows collaborative knowledge that addresses problem based learning. Watkins et al (2007) states that active learning has three dimensions; behavioural, cognitive and social. The use of the "inverted classroom" therefore can be blended in-class to create concepts from socio-constructivism. This is due to the educator acting as a facilitator with greater emphasis placed on personal instruction, enhancing student motivation, mentor, collaborator and innovator (Drew and Mackie, 2011). Snyder (2003) states that active learning can result in a deeper understanding but require students to construct their own ideas. Bonwell and Eison (1991) suggests that even lower risk teaching strategies in active learning may provide significant benefits over the traditional lecture that is installed within many colleges.

Literature retrieval on the 'Inverted Classroom Model'

The cornerstone of learning according to most is Bloom's taxonomy where learning objectives are divided into three domains: cognitive, affective and psychomotor (Bloom, 1956 as cited in Bloom, 1984). Bloom reported that an average student could progress into the 98th percentile of the student population if they received one to one constant corrective feedback. Even though attention was drawn towards this study, traditional teaching practices still remain. Thompson

(2011) reported that for most students, receiving one to one instruction is too expensive and is only an option for the upper class and privately educated. The development of emerging technologies however starts to present the potential for incorporating an indirect form of Bloom's taxonomy.

The use of the '*inverted classroom*' is not new but advances in computer technology and mobile devices has increased accessibility. According to Woolf (2010) this technological advancement has allowed educators to provide online instructional presentations and online assessments. There have been educators using this approach from as early as the late 1990's, however the required technology has not been as accessible as it has been within the last five years. This may explain why limited evidence and anecdotal data towards the use of this approach. **Table 1** provides a brief account of some academic evidence and supporting studies of the '*inverted classroom*'.

Toto and Nguyen (2009) examined the assessment results and feedback from a cohort of industrial engineering students and their perception of the '*inverted classroom*'. The primary aim of the study was to evaluate the students understanding towards online instructional support. The results indicated that students felt that 30 minute videos were the optimum amount of time for an online lecture. The students also reported that watching online media could lead to distractions and that they valued face to face lectures but also liked the additional benefits of an "inverted classroom". Interestingly, students also suggested that digital lectures "*be used to deliver theory based course material, examples, problem solutions, and supplemental course material, such as content from guest speakers*" (p. 4).

Table 1. Summary of Positive Perspectives of the "inverted classroom" and Active Learning

Authors	Academic Evidence Positives about the "inverted
Musallam (2010)	Pre-post assessment results indicated enhanced student's performance on assessment.
Day and Foley (2006)	"inverted classroom" increased student achievement and students scored higher grades on assessments and exams.
Day and Foley (2006)	Students commented they learned more with the "inverted classroom" compared to the tradition method.
Toto and Nguyen (2009)	Students suggested that digital lectures be used to deliver theory based course material.
Pierce and Fox (2012)	Improved student performance including formative assessments administered during the module, and interactive class activities.

A study by Musallam (2010) investigated the use of screencasts as a pre training technique for teaching advanced chemistry to high school students with and without narration. The research focus was to determine the effects screen casting had in relation to managing intrinsic cognitive load, student performance and specific knowledge attainment. Pre-post assessment results indicated that screen casting significantly decreased intrinsic loading and enhanced student's performance on assessments. Day and Foley (2006) compared traditional in-class lectures and online lectures on student achievement and student satisfaction. The results suggested that the "inverted classroom" increased student achievement and that students scored higher grades on assessments and exams. Students also commented positively that they learned more with the "inverted classroom" in comparison to the traditional method.

A study by Strayer (2007) on the learning environment and learning activity suggests that students felt '*lost*' in the '*inverted classroom*'. The study examined traditional instruction compared to online media instruction. The results initially suggested that students in the '*inverted classroom*' preferred and experienced a higher level of innovation and cooperation in their classroom (p. 106). However, these students were less satisfied with the class structure and organisation. The analysis showed that the variety of learning activities in the flipped classroom contributed to an unsettledness among students that students in the traditional classroom did not experience (p.180). Strayer offered a number of suggestions as to how to implement the '*inverted classroom*'. He believed that students should have in-class course selection with the activities being less open ended and more progressive. In addition, students

should have an opportunity to reflect on their own learning and what resources they wish to use.

Section conclusion

All educators battle to effectively engage and teach the students, who learn at varying rates and have different learning modalities. To truly have an '*inverted classroom*' one must also ensure that educators engage by creating something of deeper significance within the physical class. The use of educational technology is not designed to replace teaching but to help the learner understand key subjects at a rate in which the can process. The in-class component of the '*inverted classroom*' is more important than the online media as this is where educators may have the opportunity to deliver personalised instruction. Flipping the classroom requires additional commitment from the educator and the initial work to ensure that the resources online are meaningful and significant. In addition to this the "inverted classroom" needs to also be structured with multi-dimensional components put in place to give the learners options.

Students need to be accountable for this approach and they cannot sit back and passively expect to learn as they would in a traditional in class experience. There is a greater need for a respectful partnership between educator and student and that for learning to occur at a deeper level both need to be as committed in this process. The '*inverted classroom*' may not address all the limitations of the traditional class environment. Potential drawbacks may be the constant need to increase student's motivation levels to self learn prior to entering the physical class. Teaching in fitness driven courses requires a variety of teaching methods that use active learning techniques. By using the '*inverted classroom*' may provide an opportunity to create meaningful engagement and learning that you may not get by the traditional approach. The '*inverted classroom*' model is gaining more recognition in a wide range of academic settings, in which to promote student centred active learning. The continuing debate between the traditionists and progressivists will continue but there are significant gaps within this area and it is difficult to identify students likes and dislikes. More research needs to be implemented into this area where quantified studies are warranted to help educators form decisions regarding the '*inverted classroom*'.

Chapter Three

Self reflection of Active Learning

The '*inverted classroom*' could allow an opportunity to create deeper learning, if the educator can motivate the student to engage in learning externally. However, some educational practitioners within F.E. have concerns of placing instructional content online and the new role of facilitator and personalised tutor. Even though there have been a number of studies that support such an approach there remains others that are unconvinced. This maybe due to the limited amount of evidence from published research and the concept in its infancy.

The implementation of the '*inverted classroom*' in the eyes of the educator was a time consuming process not just for the development of online material but also to ensure that active learning was available within the class. Literature does suggest that it is more beneficial than the traditional approach for the student but does not discuss the impact it has upon the educator's workload. Furthermore, the need for screen capture and casting software is needed to devise such strategies and some colleges do not have the resources for this development. The need to require additional time to develop such initiatives is warranted as an on-line educational resource per subject would be approximately 100 hours' worth of development per module. This is not taking into account the need to devise in-class material which is paramount to the success of the inverted class. That said, once the material is developed then the educator only needs to focus in-class.

Educators battle to effectively engage and teach the students, who learn at varying rates and have different learning modalities. To truly have an '*inverted classroom*' one must also ensure that educators engage by creating something of deeper significance within the physical class. The use of educational technology is not designed to replace teaching but to help the learner understand key subjects at a rate in which the can process. The in-class component of the '*inverted classroom*' is more important than the online media as this is where educators may have the opportunity to deliver personalised instruction. Flipping the classroom requires additional commitment from the educator and the initial work to ensure that the resources online are meaningful and significant. In addition to this the '*inverted classroom*' needs to also be structured with multi-dimensional components put in place to give the learners options. Students need to be accountable for this approach and they cannot sit back and passively

expect to learn as they would in a traditional in class experience. There is a greater need for a respectful partnership between educator and student and that for learning to occur at a deeper level both need to be as committed in this process. The '*inverted classroom*' may not address all the limitations of the traditional class environment. Potential drawbacks may be the constant need to increase student's motivation levels to self learn prior to entering the physical class. Teaching in fitness driven courses requires a variety of teaching methods that use active learning techniques. By using the '*inverted classroom*' may provide an opportunity to create meaningful engagement and learning that you may not get by the traditional approach. The '*inverted classroom*' model is gaining more recognition in a wide range of academic settings, in which to promote student centred active learning. The continuing debate between the traditionists and progressivists will continue but there are significant gaps within this area and it is difficult to identify students likes and dislikes. More research needs to be implemented into this area where quantified studies are warranted to help educators form decisions regarding the '*inverted classroom*'.

References

1. Amalathas, E. (2010) Learning to Learn in Further Education: A literature review of effective practice in England and Abroad. CfBT Education Trust.

2. Anderson, R.D. (1983) 'Education and Opportunity in Victorian Scotland' Anderson, RD. 1955 'Education and the Scottish People. pp.1750-1918'

3. Baker, J. W. (2000).The "classroom flip": Using web course management tools to become the guide by the side. Paper presented at the 11th International Conference on College Teaching and Learning, Jacksonville, FL.

4. Bloom, B. S. (1956) Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain. New York: David McKay Co Inc.

5. Bloom, B. (1984) The 2 sigma problem: The search for methods of group instruction as effective as one-to-one tutoring. Educational Researcher, 13, 4-16.

6. Bonwell, C., Eison, J. (1991) Active Learning: creating excitement in the classroom. Ashe-Eric Higher Education Report No. 1. Washington DC.: The George Washington University Schools of Education and Human Development.

7. Byrne, D. (1999) Social Exclusion. Buckingham: Open University Press.

8. Cannell, P., Thomson, J. (2010) Higher education in Scotland's Colleges: opening up routes to a degree. Widening Participation and Lifelong Learning. (12) pp.103-114

9. Clark, D. (2007) 10 Reasons to Dump Lectures. Retrieved from http://donaldclarkplanb.blogspot.ca/2007/12/10-reasons-to-dump-lectures.html

10. Claxton, G., Lucas, B. (2009) School as a foundation for lifelong learning: The implications of a lifelong learning perspective for the re-imagining of school-age education. Leicester: National Institute of Adult Continuing Education.

11. Cloonan, M., Crossan, B. (2001) "Families here they don't do education, they get jobs". Men women and lifelong learning in Govan. Glasgow Centre for Research in Lifelong Learning, Glasgow Caledonian University, Researching Widening Access, Conference Proceedings, Addendum. pp. 1-8.

12. Coffield, F. (1998) Breaking the consensus: Lifelong learning as social control. British Educational Research Journal. 25 (4) pp. 479-499.

13. Cornelius, S., Gordon, C. (2008). Providing a flexible, learner-centered programme: Challenges for educators. Internet and Higher Education, 11, 33–41.

14. Day, J. A., Foley, J. D. (2006) Evaluating a Web Lecture Intervention in a Human–Computer Interaction Course. IEEE Transactions on Education, 49(4), 420-431.

15. Drew, V., Mackie, L. (2011) Extending the constructs of active learning: implications for teachers' pedagogy and practice. The Curriculum Journal, 22 (4), 451-467.

16. Foskett, N.H., Hesketh, A.J. (1996) Student decision making and the post-16 market place, University of Southampton, Heist.

17. Gallacher, J., Crossan, B., Leahy, J., Merrill, B., Field, J. (2000) Education for All? Further Education, Social Inclusion and Widening Access. Glasgow: Centre for Research in Lifelong Learning, Glasgow Caledonian University.

18. Gorard, S. (2000) 'Adult participation in learning and the economic imperative: a critique of policy in Wales'. Studies in the Education of Adults. 32 (2) pp. 181-194.

19. Hughes, H. (2012) Introduction to flipping the college classroom. In T. Amiel & B. Wilson (Eds.), Proceedings from world conference on educational multimedia, hypermedia and telecommunications (pp. 2434–2438).

20. Jackson, K. (1997) 'The state, civil society and the economy: Adult education in Britain' in Walters, S. (Ed.) Globalization, Adult Education and Training.

21. James, M., Pollard, A.J. (2006) TLRP's ten principles for effective pedagogy: rationale, development, evidence, argument and impact. Research Papers in Education, 26(3). pp. 275 - 328.

22. Keefe, J. (2007) What is personalization? Phi Delta Kappan, 89(3), 217–223.

23. Knox, W.W. (2014) A History of the Scottish People Patterns of the Education System 1840-1940. Available from {http://www.scran.ac.uk/scotland/pdf/SP2_1Education.pdf }.

24. Kolb, D.A. (1984). Experiential learning: Experience as the source of learning and development, volume 1. Prentice-Hall Englewood Cliffs, NJ, 1984. ISBN 9780132952613. URL http://books.google.com/books?id=ufnuAAAAMAAJ .

25. Lage M.J., Platt G.J., Treglia, M. (2000) Inverting the classroom: A gateway to creating an inclusive learning environment. The Journal of Economic Education, 31(1):30–43.

26. MacLennan, A., Musselbrook, K., & Dundas, M. (2000) Credit transfer at the FE/HE interface – Research report for the Scottish Further Education Funding Council, Scottish Further Education Funding Council, Edinburgh. Available from {http://www.sfefc.ac.uk/publications/other/wideopps.pdf}

27. McGivney, V. (1993) 'Participation and non-participation: A review of the literature' in Edwards, R., Sieminski, S., Zedlin, D (Ed.) Adult Learners, Education and Training. London: Routledge. pp. 12-30.

28. MacPherson, A. (1992) "Schooling' in Dickson, A., Teble, J.H. (eds) People and Society in Scotland. Vol II, 1914-1990. pp 80-107

29. Metcalf, H. (1997) Class and Higher Education: The Participation of Young People from Lower Social Classes. CIHE. London.

30. Michael, J. (2006) Where's the evidence that active learning works? Advances in Physiology Education, 30(4): 159–167

31. Murphy, M. (2000) 'Adult education, lifelong learning and the end of political economy' Studies in the Education of Adults 32(2), pp. 166-180.

32. Musallam, R. (2010) The effects of using screen casting as a multimedia pre-training tool to manage the intrinsic cognitive load of chemical equilibrium instruction for advanced high school chemistry students. (Doctoral dissertation, The University of San Francisco). Retrieved from http://flipteaching.wikispaces.com/The+Research

33. Nash, I., Jones, S., Ecclestone, K., Brown, A. (2008) Challenge and change in Further Education: a commentary by the Teaching and Learning Research Programme. Teaching and Learning Research Programme (TLRP) and Economic and Social Research Council (ESRC).

34. NCIHE (National Committee of Inquiry into Higher Education) (1997), Higher Education in the Learning Society: Report of the Scottish Committee, (Norwich, HMSO).

35. OECD (1998) Human Capital Investment; An International Comparison. Paris: OECD. Paterson, L. (1998) 'Higher education, social capital, and the Scottish Parliament'. Scottish Affairs. (22). pp.99-111.

36. Osborne, R. D. (1999) Wider Access in Scotland? Scottish Affairs. (26). pp. 36–46.

37. Osler, D. (1998) Communities: Change Through Learning- Report of a Working Group on the Future of Community Education. Scottish Office.

38. Pettigrew, T. (2012). Why I won't flip my classroom. Macleans.ca On Campus. Retrieved from http://oncampus.macleans.ca/education/2012/08/22/why-i-wont-flipmy%20classroom/#more-42983

39. Piaget, J. (1968) On the development of memory and identity. Barre, MA: Clark University Press with Barre Publishers.

40. Putnam, R. (1996) Who killed civic America? Prospect. pp.66-72

41. Reeve, F., Gallagher, J., Ingram, R. (2009) A Comparative Study of Higher Nationals in Scotland and Foundation Degrees in England' in Lifelong learning revisited – what next? Proceedings of the CRLL conference 2009, Glasgow: CRLL.

42. Robertson, D. and Hillman, J. (1997) Widening Participation in Higher Education for Students from Lower Socio-Economic Groups and Students with Disabilities, Report 6.

43. Scottish Executive (2001a) Lifelong Learning. A summary review of Scottish Executive documents and action on lifelong learning over the past 2-3 years. Glasgow: Scottish Executive.

44. Scottish Executive (2001b) The Way Forward, Framework for Economic Development in Scotland. Edinburgh: Scottish Executive.

45. Speed, M., Hartfree, Y. (1998) Lifelong Learning – Attitudinal and Behavioural study. Glasgow: Glasgow Development Agency.

46. Steele, T. (1999) Glasgow the Learning City: Barriers to Access to Learning. Glasgow: Glasgow Development Agency. University of Glasgow.

47. Strayer, J. F. (2007). The effect of the classroom flip on the learning environment: A comparison of learning activity in a traditional classroom and a flip classroom that used an intelligent tutoring system (Unpublished doctoral dissertation). Columbus: Ohio State University.

48. Snyder, K.D. (2003) Ropes, Poles, and Space Active Learning in Business Education.

49. Tinklin, T. (2000) The Influence of Social Background on Application and Entry to Higher Education in Scotland: A Multilevel Analysis. Higher Education Quarterly, 54 (4) pp.367–385.

50. Toto, R., Nguyen, H. (2009). Flipping the work design in an industrial engineering course. In Frontiers in Education Conference. FIE 2009. 39th IEEE , 1–4.

51. Verkroost, M., Meijerink, L., Lintsen, H., Veen, W. (2008). Finding a balance in dimensions of blended learning. International Journal on E-Learning, 7(3), 499–522.

52. Watkins, C., Carnell, E., Lodge, C. (2007) Active learning. In: Effective learning in classrooms. SAGE Publications Ltd. London, 69-87.

53. Wheeler, S. (2012). What the flip? Retrieved from http://stevewheeler.blogspot.ca/2012/03/what-flip.html

54. Woolf, B. P. (2010). A roadmap for education technology. Retrieved 21 February 2016 from http://www.coe.uga.edu/itt/files/2010/12/educ-tech-roadmap-nsf.pdf.

55. Vygotsky LS (1978) Mind and society: The development of higher mental processes. Cambridge, MA: Harvard University Press.

56. Vukman, K.B. (2005) 'Developmental differences in metacognition and their connections with cognitive development in adulthood'. Journal of Adult Development 12 (4) pp. 211–221.