Using career learning theory to inform the design and evaluation of ICT based CEIG services

Tracey Innes

Careers professionals are increasingly making decisions about whether and how to use the volume of new technologies available in the services they offer. This article is derived from a project which asks how theories about how people learn about careers, can be used to provide a theoretical underpinning to the design and evaluation of ICT based careers interventions. A critical comparison of career learning theories is used to propose a framework for careers professionals designing ICT-based careers interventions. With such a range of ICT-based services already on offer, an approach to evaluating the effectiveness of these interventions using learning outcomes is also proposed.

Rationale behind the research

Through my careers advisory work I have found it increasingly challenging to keep up with ICT developments and incorporate new technologies into the careers services offered at the University of Aberdeen. In 2010, as a result of an earlier research project, new virtual services comprising online chat and eguidance were trialled at the University of Aberdeen. In reviewing these services, I identified some issues for concern relating to repeat use. The nature of the question submission system had resulted in a number of repeat-users submitting in excess of 20 queries showing very little evidence of progression in their career learning. This led me to think that a more structured approach to designing ICT-based CEIG services was needed and prompted me to embark on the research project. With the relevance of, and connection between, learning theory and careers work recognised by career researchers, such as Mitchell and Krumboltz (1996) and Hodkinson (2009), I decided to approach my research from the career learning perspective. Law (2010) outlines some key issues for careers professionals to consider regarding career learning and the internet, proposing that whilst it is unlikely that educators know more about technology than their students, it is unlikely that their students know more about learning processes than their teachers. The research asks how careers services and professionals can design ICT-based CEIG services which facilitate and deepen client career learning.

Learning and career theory literature review

My literature review started with the work of Kolb (1984), a widely recognised experiential learning theorist from which I identified a number of key points. Kolb proposes that learning is best conceived as a process, not in terms of outcomes, and that this is a continuous process grounded in experience. In describing the process of learning, Kolb outlines a four stage cycle and within this process proposed that two basic dimensions of equal importance are required: how experience is grasped (within which he proposed two opposing forms termed apprehension and comprehension) and how it is transformed (with two opposing ways termed extension and intension). From what Kolb outlines, I think he is suggesting that for

learning to occur, at the very least, the individual would need to grasp experience via Concrete Experience or Abstract Conceptualisation and transform that experience via Reflective Observation or Active Experimentation. It seems he is also suggesting that for the best learning to take place, activities in all four parts of the cycle are necessary, and that framing the services offered by careers professionals in a way which prompts and facilitates students to engage in each of the parts of the cycle could be helpful. For example, students undertaking work experience could be provided with materials and support enabling them to reflect, and therefore transform their experience. This view of the process of learning is helpful as it can be applied to a wide variety of situations which appear very different; for example internships, simulation, action research or projects, giving the potential to apply this approach to designing ICT based interventions applicable to a range of careers topics.

In their social learning theory of career and career counselling, Mitchell and Krumboltz (1996) make claims about how people learn about career and how career counsellors can intervene constructively. Mitchell and Krumboltz (1996: 234-235) propose that two forms of learning ('associative learning' and 'instrumental learning'), together with genetic endowment, special abilities, environmental conditions, events and task approach skills, influence an individual's self observation and world view generalizations (beliefs). Associative learning, relates to the positive or negative emotional connections clients assign from a direct experience and by gaining information indirectly through books, media and objects. Recognition of how these indirect factors influence a client's beliefs is particularly important, given the increase in volume and accessibility of indirect influences via technology. This perspective is helpful because it suggests a role for careers professionals in enabling clients to recognise these beliefs which might restrict or have the potential to widen their career learning.

Although Kolb and Mitchell and Krumboltz describe the range of influences on learning, these authors tend to focus on learning being an individual process, a view which contrasts with that of Hodkinson who views learning as being an integral part of living. Hodkinson (2009:12) argues that learning is 'a central part of career construction' which happens formally and informally and is 'ubiquitous in peoples' lives'. Hodkinson's work suggests that careers professionals could helpfully focus on ensuring clients are able to broaden their exposure to external influences (their field). However, it is equally important to consider how clients use these 'exposures' for learning, which relates to Kolb's point about transforming experiences for learning to occur.

Implications for designing ICT-based CEIG services

Considering the ways people learn about careers, has led me to re-evaluate the role that careers professionals and services can play in the process of career learning - which is far wider than a formal careers education programme, guidance interaction or ICT-based intervention. Designing ICT-based CEIG services for clients is important as the increase in accessibility and volume of influences on career learning can be difficult to make sense of and filter for clients. This increase in accessibility and volume of influences via ICT presents an opportunity for clients to 'grasp' a fuller range of 'experiences' (relating to Kolb's learning cycle). However, relating to the remaining two opposing parts of Kolb's cycle, the challenges of this accessibility lie with helping clients work out ways to 'transform' these 'experiences' (extension and intension). To facilitate learning, Kolb recommends beginning the learning process by 'bringing out the learner's beliefs and theories, examining and testing them, and then integrating the new, more refined ideas into each person's belief systems' (1984:28). So Kolb suggests that even though learning is a continuous process, for facilitating learning there needs to be an identified starting point. Approaching the design of learning from the personal perspective poses challenges on a practical level, as learning interventions are most often designed without prior knowledge of each individual's starting point. Creating the opportunity for the learner to recognise the extent of their learning and establish their individual starting points could be a helpful approach; however this poses a further challenge relating to how well a client is able to identify and articulate their own starting point. Clients can find it difficult to identify why they have taken particular actions or think in a

particular way in relation to their careers. This point is made by Hodkinson who states that learning is 'an inherent and often tacit part of career construction and development' (2009:12). The complexity of influences on learning, the fact that it is happening all the time and that much of the learning is tacit, poses challenges and questions for service designers.

Kolb suggests that one condition for deeper learning is conflict, where learners are presented with and work through conflicting concepts, termed the 'dialectic relationship' (1984:29). This has similarities with the idea of 'points of view' made by Law (1996:60) where he proposes that examining two or more points of view which are concurrently held is one condition for learning. This point is valuable as this would suggest careers professionals encourage clients to question the validity of information presented to them, to analyse it and draw conclusions of their own. Thus, these points are important for aligning the role of ICT in career learning. Law (2010) proposes that the internet has resulted in an increasing range of, mostly informal, influences on individuals. Law also points towards the changing behaviours of individuals looking to learn about career which he terms 'career-management on-the-net' (2010:1) and points out the potential for these behaviours to be misleading. Sampson (2010a, 2010b) studied how clients use the internet as a source of information for problem solving and suggests that, to assist students, careers support online should incorporate ways to help students to understand, act and cope (Sampson, 2010b). Sampson refers to this in the context of designing online resources, but there is some scope for broadening this to helping students to learn how to utilise the ever expanding range of material online: not dissimilar to the concept of supporting clients in working through conflict outlined by Kolb. Some points made by Hodkinson provide a further helpful perspective here. Hodkinson cites the concept of 'hot source' which suggested that decisions are mostly made based on partial information from a 'hot source' i.e. information gathered from 'people whom they felt they could trust, rather than from, say, official printed materials' (2009:8). Law states that it is important for careers professionals to ensure students are able to 'probe and scrutinise what they find on the web' and to think critically about what they find (2010:2). So, an important aspect of ICT-based CEIG services could lie in supporting career learners in sifting and making sense of this ever increasing volume of material. A holistic approach to the design of career learning could be built from encouraging clients to recognise and challenge the tacit elements of what they have learned, enabling them to work through conflict by comparing and contrasting this with new learning.

A final point Law (2010) makes about how careers professionals can support students suggests that we focus on 'shifting the emphasis from content to process' with the 'teacher as more of a partner than a source' (ibid:13). This may link with the earlier points made by Kolb focusing on learning being about the process not the outcomes. Applying this to our careers provision and framing the elements of our services in the learning process could give careers professionals a way of designing services, including those which are ICT-based within a theoretical framework.

Evaluating ICT-based CEIG service services

As the project moved on, I then focused on identifying ways to measure the effectiveness of CEIG interventions for career learning. Given that Kolb suggests a focus on the process rather than the outcomes, and that each individual comes to a learning intervention in a different way based on their experience; then some types of outcomes, even if they could be measured, will have too many other variables attached to them based on the beliefs and experiences of each individual. Killeen and Kidd (1991) reviewed research about the learning outcomes of guidance and outline four different types of measures: process measures, client reaction measures, vocational and educational measures and learning outcome measures. Their review identified problems and issues relating to all of the measures identified. This point is supported by Hodkinson (2009) who proposes that care should be taken not to make direct connections between the decision making outcomes of clients and the quality of the careers interaction offered. Firstly, because a client is unlikely to be able to fully explain how or why they have made a decision, and secondly, because the careers interaction is only one of a wide variety of factors influencing how career decisions are

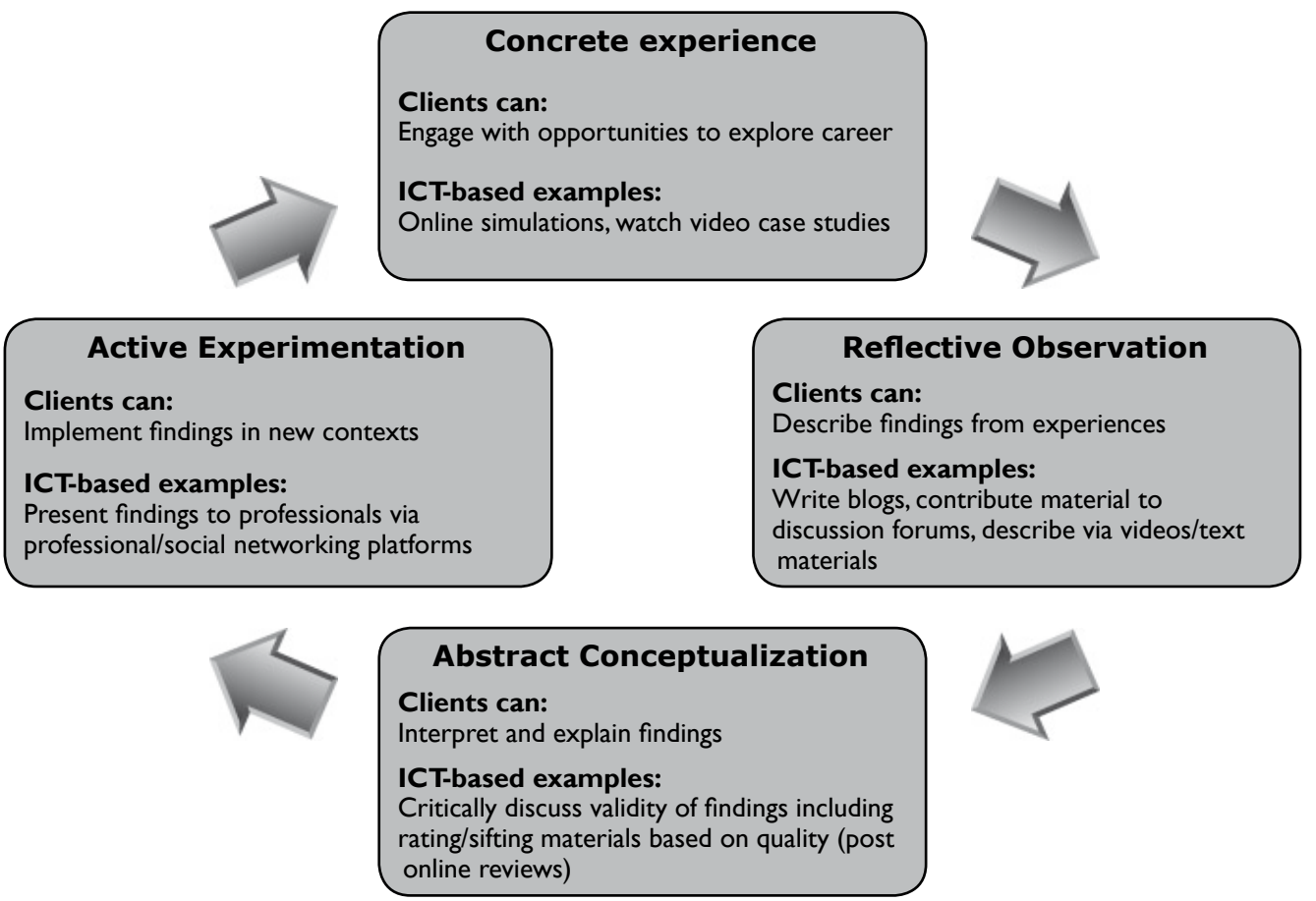
made. From this, Hodkinson (2009: 14) recommends that 'effective policy needs non-outcome based ways of helping guidance providers maximise the chances of high quality provision within their services'. This recommendation provides some useful insight into the challenges of measuring the learning outcomes of guidance. However, whilst challenging, I think that designing learning outcomes which focus on the career learning processes that clients engage in, could help articulate learning goals to clients, attract and engage clients in using the service and also to report to management on the impact of services. Krumboltz (cited in section 2.3 of Bimrose, 2004) proposes the following questions which provide a helpful starting point:

- How successful have my interventions been in stimulating new learning on the part of my clients?
- How well have my interventions helped my clients cope with a constantly changing world of work?

I like these questions because they focus more tightly on elements of the learning process, rather than tangible outcomes such as successful employment applications. I decided to develop this approach further, seeking to relate measurement of the extent of career learning to the four parts of the learning cycle proposed by Kolb. For the client in figure 1, I have suggested learning outcomes and examples of ICT-based career learning that clients could engage in, using the first question about stimulating new learning.

In seeking feedback about client career learning, questions could be designed to explore the extent to which clients feel confident in each of these four areas before and after engaging in ICT-based CEIG services.

Figure 1: Learning outcomes designed based on the 4-step learning cycle (adapted from Kolb, 1984:42)



Building a framework for designing and evaluating ICT-based CEIG services

I next wanted to make some connections between the literature and designing new ICT-based CEIG services. Using my findings from the literature and considering the learning outcomes proposed in figure 1, I designed the framework outlined in figure 2. It is hoped this can provide a starting point for professionals seeking to design services from the career learning perspective.

Figure 2: Framework for designing ICT-based CEIG services

Considerations in designing ICT-based CEIG services To what extent (using 0-5 scale where: 0 = not at all; 3 = in part; 5 = fully) does each service enable clients to:	**ICT service 1** **e.g. Online chat / eguidance**	**ICT service 2** **e.g. Social networking presenc**	**ICT service 3** **e.g. VLE career modules**
Recognise career learning influences			
Assess extent of prior career learning			
Challenge their positioning regarding career learning			
Identify gaps and establish goals for career learning			
Recognise opportunities to engage in new career learning			
Critically review findings and make sense of conflicting views/materials			
Make decisions about validity of findings			
Apply / act on career learning			

The strength of approaching service design in this way is its application to any topic of career learning and any number of ICT-based CEIG services. Reflecting on my findings, and experiences in my own practice, I think it is important to avoid designing new services in isolation of existing provision. It is highly unlikely that one service will enable a client to achieve the full learning outcomes proposed in figure 2, and equally unlikely that clients will engage in only one aspect of careers service provision. Viewing ICT-based CEIG services as a suite of aligned services could allow clients to maximise the extent and depth of their career learning.

The types of questions to ask and activities and resources being provided, could be designed in relation to the topic of career learning intervention being developed and the method of delivery. I see the value of this approach in enabling designers of services to identify gaps in career learning provision and seek ways to frame services alongside others which will help fill these gaps.

Conclusions

This summary from my literature review, identifies some ways in which career learning theories can be used to inform the design and use of ICT in CEIG work. My review of this broad and vast field of study about career from a learning perspective, has identified potential in using learning outcomes to evaluate different ICT methods and services. I have explored issues around measuring the effectiveness of ICT-based CEIG interventions given career learning is happening all the time and is not confined to the intervention itself. There are difficulties in measuring the effectiveness of CEIG and care should be taken not to make direct connections between the eventual actions of a client and the quality of the intervention. Measurement of effectiveness can instead be more reliably based on elements of the career learning process.

The proposed framework for designing ICT-based CEIG assumes clients' career learning and actions are not restricted to individual careers interventions. This recognises that learning about career is happening all of the time with or without interventions from careers professionals. In seeking to support clients, the framework encourages a focus on: helping clients recognise the existence of this range of influences; supporting clients in making sense of this range of influences; and helping them work through any conflicts which arise.

Next steps

The next steps of my research will seek to apply the range of learning outcomes and framework proposed to analyse the effectiveness of three separate types of ICT-based service. The outcomes of this will be used to inform the design of new services at the University of Aberdeen; in order to test these propositions and to use as a basis for revising the framework for practitioners in designing ICT-based CEIG services.

References

Bimrose, J. (2004) Learning theory of careers choice and counselling. Institute for Employment Research. http://www.guidance-research.org/EG/impprac/ImpP2/traditional/learning-theory/ (Accessed 19/04/10).

Hodkinson, P. (2009) Understanding career decision-making and progression: careership revisited. *Career Research and Development, the NICEC journal: making practice thoughtful and theory practical.*

Killeen, J. and Kidd, J. (1991) *Learning outcomes of guidance: a review of recent research.* Cambridge: National Institute for Careers Education and Counselling.

Kolb, D. (1984) *Experiential learning*. Prentice Hall PTR.

Law, B. (1996) Career-learning theory in Watts, A.G., Law, B., Killeen, J., Kidd, J. and Hawthorn, R., *Rethinking Careers Education and Guidance – Theory, Policy and Practice*, London: Routledge.

Law, B. (2010) Building on what we know, career learning on the net, colonise or inhabit? www.hihohiho.com/newthinking/crlrninternet.pdf (Accessed 10/01/2011).

Mitchell, L.K. and Krumboltz, J.D. (1996) Social Learning Theory, in Brown, D., Brooks, L. and Associates (eds), *Career Choice and Development* (3rd edn.). San Francisco, CA: Jossey-Bass Inc.

Sampson, J.P. (2010a) *A four-step model for integrating counseling and web site use*. International Centre for Guidance Studies, University of Derby.

Sampson, J.P. (2010b) *Client use of internet web sites as an information resource for problem solving.* International Centre for Guidance Studies, University of Derby.

For correspondence

Tracey Innes
Senior Careers Adviser
University of Aberdeen

Email: t.innes@abdn.ac.uk