

CAREERS GUIDANCE DIRECTIONS

ESTHER CARE

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ACTRC is a partnership between the University of Melbourne and the University of the Philippines, supported by the Australian Government

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Suggested citation:

Care E. & Scoular, C. (2016). Careers Guidance Directions. Report to the Basic Education Sector Transformation (BEST). Assessment, Curriculum and Technology Research Centre (ACTRC). Melbourne and Manila.

EXECUTIVE SUMMARY

This review is designed to stimulate discussion around what is most useful to consider in the context of provision of careers guidance to adolescents, from the individual perspective. Globally, the use of aptitude or achievement tests for career guidance is limited. This is attributed to two factors. One is the lack of predictive capacity of these measures for career destination. The other is the changing nature of the world of work in which there is increasing mobility of individuals across jobs and careers. Historically, aptitude tests were the first formal attempts to guide placement of individuals in career paths or jobs, most notable from the middle decades of the 20th century. This was replaced by a combination of aptitude tests, specific to major career paths such as technical, commercial, artistic and so on, with interests and values tools. Increasingly, this combination has been replaced by focus on interests and personal characteristics tools, together with providing adolescents with more information about the nature of different jobs and the pre-requisite learning that enables entry to these. Guidance provided to adolescents now emphasises exploration of interests, together with awareness of current progress in school achievement, and how this is likely to relate to continued success in particular subject or discipline areas. The second aspect of guidance relates to the provision of career information to students - what the prerequisites for particular careers are in terms of education and personal characteristics.

The review provides both historical and current information about what factors have been seen to play a role in career decision-making and guidance. It provides evidence to support the changes in views about career guidance, through citing relevant research studies. In addition, the review provides information about current practices in career guidance in several countries in the Asia Pacific region to provide some insights. The review concludes with some straightforward recommendations.

These recommendations are:

- Education and careers guidance should be based on consideration of students' interests and current school progress;
- Use of the current aptitudes assessment approach to careers guidance should be replaced by career guidance and counselling throughout Grades 7-12.

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INTRODUCTION

This discussion paper has been prepared in order to explore the relevance of assessment of student characteristics, interests, and abilities, for careers guidance in the context of 2016, a changing world. This is the year that the first cohort of Filipino students will enter the K- 12 education reform's Grade 11. With a new curriculum, new assessment framework, and hopes to optimise both individual and national educational outcomes, it is timely to question approaches to career guidance in the same way that the Philippines Department of Education has questioned, and reformed, curriculum, pedagogy, and assessment.

School-based career guidance refers to services provided by educators and trained practitioners to assist students to make educational, training and occupational choices and to manage their careers (OECD, 2004). Career guidance is typically implemented to help students think about their futures. This means considering careers as described by job titles, areas of work as characterised by with whom and where the work activity is undertaken (e.g. “working with children”; “working outdoors”), and the post-school educational choices that need to be made to enable these pathways. For the student, immediate implications of considering career directions concern choices of school subject or track through the secondary education sector. In some countries these subject or track choices are pre-empted by assessment of student general aptitudes (academic excellence) at end of primary, although this is rare. In others, some form of assessment takes place at points in the education system where different options within the curriculum become available to students. Such options occur in some countries after the second year of secondary education, and in others after the third or fourth years. The importance of some guidance around these decision points rests with the fact that particular subject or track choices pre-empt later decisions. For example, if a 15 year old decides not to include higher level mathematics in their curriculum selection, the choice of later occupations is immediately circumscribed.

THEORIES IN CAREER GUIDANCE

Careers guidance as a self-conscious professional endeavour, has relied on theoretical frameworks. There are several theories of career development that have guided career guidance and counselling practice and research globally. The first of these is a framework that was developed more through practical need than academic research. Frank Parsons theorised the concept of job-person fit, which directed decisions in matching army recruits to specific jobs. This concept of job-person fit arose in the 1920's and coincides with the beginning of the universalisation of education, with the concept that all children

would complete basic education; and with the realisation that work choice existed – children would not follow their parents or traditional gender roles to the same extent as in the past. Much of the early job-person fit work centred around aptitude assessment, that is, cognitive abilities, rather than other individual characteristics.

Simultaneously in the 1920's, James Strong led a movement that was based on use of individuals' likes and dislikes to identify appropriate work directions, again in response to the need to help the armed forces. This was an important milestone in the career guidance movement, since it signalled the relevance of personal characteristics beyond cognitive capacity. Strong's work relied on the Minnesota "dust-bowl empiricism" movement, which prioritised data over theory. Strong's thesis was that people in different occupations would typically differ in their likes and dislikes across occupations, but be similar within occupational groups. By 1935, Strong had capitalised on the invention of psychometric tools to organize and classify vocational interests across the world of work, intent on assisting students move into that world.

From the 1950's Holland's theory of vocational personalities was adopted to frame Strong's empirical work. This work led to the primacy of careers guidance based on "vocational interests" in the developed world. In the past few decades, Holland's theory (1985, 1997) has guided career interest assessment internationally. Holland proposed that vocational interest is an expression of personality, and that vocational interests could be conceptualised across six types. These interest types are Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C). Individuals' interests can be described by their preferences across these six, such that an individual can be described by the highest, second highest and sometimes third highest interests. Based on the original work of Strong, the theory was extended such that each job could also be described using the same classification. At the most simple level, a person whose measured interests are Artistic and Social, might be advised to explore jobs that combine activities best described by these interests - for example, an art gallery tour guide, or an arts teacher. On completion of the various interest assessment tools available, students might be provided with a profile of interests and an accompanying two- or three-letter code to summarise their career interest, for example AS (Artistic Social). Students might be encouraged to explore occupations that are also described by this code, in order for them to understand the implications of their interests for areas of work that might, at first sight, be appealing.

Another theoretical approach that has played a role in careers guidance revolves around work values. Donald Super in the 1950s highlighted the relevance of the values that describe work environments and the preferences of individuals for fulfilment of these

values. The “values” inventories that emanated from this stream of research tended to be used more in human resource contexts than in careers guidance at school level, but nevertheless played a role in rounding out the field of activity. Super (1969, 1980, 1990) suggested that career choice and development is essentially a process of developing and implementing a person’s self-concept. According to Super (1990), self-concept is a product of complex interactions among several factors, including physical and mental growth, personal experiences, and environmental characteristics and stimulation. While Super linked maturation to self-concept, researchers since have built on this theory. Savickas (2002) for example, shows how environment plays a major role. Self-concept may remain relatively stable but it will be impacted by various stages of life and experiences of the student. Super led an international research collaboration to study work role salience and work values across different cultures. The study included North America, Europe, Africa, Australia and Asia, resulting in measures of work roles and work values with similar structure and constructs.

The set of characteristics that has therefore been central to career guidance in school sectors includes values, interests, cognitive capacities, and other aptitudes. Measurement of these and their predictive capacity for student destination, success, and satisfaction was at its peak in the 1970s through 1990s. A seminal monograph by Linda Gottfredson (1981) contextualised the complexities of the predictive pathways by proposing a developmental theory of career development. This theory took into consideration different stages in the life cycle as children start to understand the world around them in terms of sex roles and status, and preferences; and then outlines the process of compromise during adolescence as individuals become aware of what is possible and realistic. Gottfredson’s (1981, 1996, 2002, 2005) contributions to the field highlight the complexity involved in identifying self-concept and a career path. She acknowledges the mass of information students have to navigate in order to identify what they may be interested in, what they can do, and what the options might be in consideration of these two factors. Gottfredson also acknowledges the relationship between nature and nurture in career selection. From this perspective career guidance is viewed as a “self-creation process” in which students try to identify a career pathway that balances their innate ability with their interests, and the values that are shaped by their environment.

One of the most recent theories is social cognitive career theory (SCCT) that incorporates all three factors: abilities, interests, and values. Lent, Brown and Hackett (1994) developed the theory based upon Bandura’s general social cognitive theory, an influential theory of cognitive and motivational processes that has been extended to the study of many areas of psychosocial functioning, such as academic

performance, health behavior, and organizational development. SCCT is a useful framework for identifying how students make decisions and develop interests in relation to their prospective careers. Beyond the theories mentioned, SCCT considers the psychological processes involved in making career-based decisions. The complexity of the factors involved in career selection, as interpreted by SCCT, are presented in Figure 1. School-based career guidance based on this model comprises helping students understand themselves – their preferences and their capacities, and then place this knowledge in the context of the world of work.

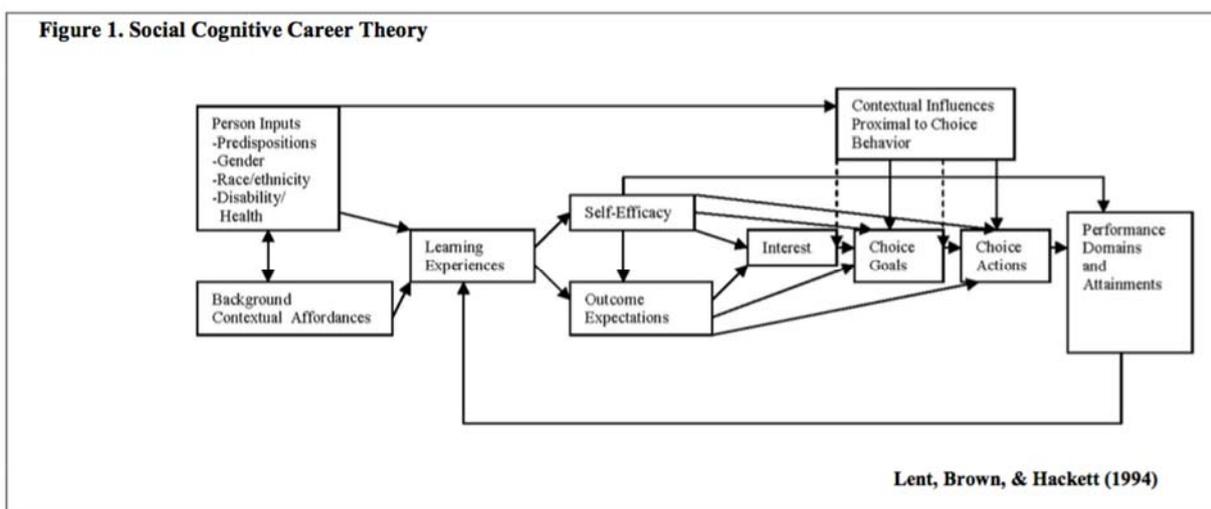


Figure 1: Career selection process as interpreted by SCCT (Lent, Brown & Hackett, 1994)

MEASURES AND APPROACHES

Research has highlighted the nature of shift in workplace requirements (e.g., Levy & Murnane, 2004) and the change that is required in education and training to equip the emerging workforce with the skills required for the 21st century. In the 21st century, education institutions are expected to do more to ensure that students leave with the skills they need to be productive workers and citizens (Holtzman & Kraft, 2011) over and above specific vocational skills. Increasingly, employers are searching for employees who have strong abilities in problem solving, teamwork, oral and written communications, leadership, managing others, and system thinking (Zekeri, 2004). With the current century arrive occupations that are technology-driven, and that involve increasingly non-routine tasks, collaborative efforts, and reasoning and critical skills (Salas, Cooke, & Rosen, 2008). The shifting nature of employment has shown a decrease in labour intensive and routine manual jobs and an increase in jobs that require complex communication and expert thinking (Levy & Murnane, 2004). Technology advances are dictating and changing the

needs of the market rapidly. Most people are likely to change jobs several times over their lifespan and are also likely to require further training or learning when they do so. Similarly, many career pathways do not provide permanent employment options, but instead lead to project or contractual work. There has been increasing pressure on policy makers to consider these issues, and in particular to examine the juxtaposition of existing career development programs in reference to changed labour markets (Levin, 1995; Nadel, 1997; Takanishi, 1997; Watts, 1996).

Despite the labour market shift, most career development theory remains in the 20th century and out of sync with both needs and practices. McMahon and Watson (2012) point out that “theory, research and practice conceived in the 20th century have served career development well but they are not sufficient to strategically position career development in a global world and ensure a sustainable and relevant future” (p. 7). Late in the 20th century, Leung (1999) was already identifying three areas that are highly valued in a productive workforce: interpersonal and collaboration skills, systematic problem solving skills, and self-enhancement skills. Economically, education should produce students whose skills are consistent with the demands of society. Developmentally, we should be equipping students with skills beyond academic achievement. Leung (1999) stated that education systems place too much emphasis on academic achievement and not on developing competencies in line with career aspirations. It would be a fair assumption that, until fairly recently, few students received a program of learning focused on explicitly managing their career goals and expectations. Students who have received this have likely found it only tailored to the mid-high secondary transition or school to work transition. Students should be receiving explicit guidance to prepare them for a world of work characterised by increasing and pervasive change (OECD, 2004).

Perhaps the biggest shift in the last decade is the move from thinking about ‘career planning’ to considering ‘life planning’ during school. This way of thinking has been present since the 1990s with Cramer and Herr (1996) stating that career is a process that takes place across the life span. However, forward thinking education systems are only recently developing inclusive and holistic approaches to prepare students with both the knowledge and skills to take a lifelong perspective. Educators globally have begun to recognize these shifts and have begun to incorporate or to plan to revise their curriculum accordingly (Reimers & Chung, 2016). At national levels many countries are reviewing their approaches to the nature of education, and education systems are beginning to integrate career education/guidance across their curriculum that goes beyond a vocational focus. Increasingly systems have recognised that guidance around careers should be an ongoing and lifelong process. The major

career theories mentioned in the previous section were all developed in the USA, notwithstanding their global influence - but primarily in Western tradition countries. While the theories themselves have evolved with emerging research and socio-economic advances, there were calls in the 20th century for further research to identify cultural relevance (Leung, 1995). Having a culturally relevant framework is essential to ensure successful implementation and sustainability of career guidance within and between countries. Notwithstanding this perspective, the research on interests in particular provides strong evidence of cross-cultural validity. Likewise, the core work by Super on values shows that the structure and dimensions of work values are common across a wide variety of countries and cultures, although there are differences in which values are more strongly reflected across some of these.

CAREER MEASURES

Career guidance typically begins with assessment of the student and is followed up with interventions. As defined by the major theories, assessment of the student usually involves three areas: abilities, aptitudes and skills; career related preferences based upon interests and values; and general characteristics including personality traits (McCaulley, 2000). Assessments of this nature have traditionally been carried out using paper and pencil. However, the last two decades of the century saw the adoption of technology, and in particular the internet, for administration of these assessments (Harris-Bowlsbey, Riley Dikel, & Sampson, 2002; Sampson, 2000). The impact of the internet in career assessment has been huge with many existing tests transferred into more accessible versions, providing access to career related information anytime and anywhere (Barak & Buchanan, 2004). While the internet serves as a useful means for students to organise and research career information, this access to information has not been matched by mechanisms for providing more individualised meaningful and informative feedback to students through this medium. Feedback from the online assessments needs to be meaningful to students in the sense that they can link it to potential career pathways, as practitioners would help them to do. Career guidance practitioners have considered the assessments themselves as interventions, raising self awareness of students' interests and values (Campbell, 2000). Raising this awareness, and then providing students with information about careers in terms of pre-requisite knowledge and skills, has become more common practice than using aptitude and achievement tests to make decisions about student subject and career destinations.

ACHIEVEMENT AND APTITUDES

Student ability may be seen as performance on tasks, their achievement, or their aptitude. There is a great deal of laxity in use of terms like intelligence, cognitive ability, aptitude, skill, achievement.

Intelligence is generally understood to describe inherent reasoning capacities, and to underpin a vast array of human performance. Cognitive ability reflects this underpinning capacity and may refer to a person's capacity to act on this. Aptitude is also seen as a human characteristic that is in part a predisposition, but which is assumed to be enhanced through experience and environment. Skills, even more so, are seen as reflecting capabilities that are learnt. Achievement refers to what is demonstrated. The widespread use of tests that measure intelligence rests on the notion that we are interested in its predictive capacity. The widespread use of tests that measure achievement tends to rest on interest in whether particular learning has taken place. The factors that influence achievement, particularly in the school context, may include intelligence, but include environmental and motivational factors. All things being equal, a measure of achievement is more likely to predict future performance than a measure of an abstract concept such as intelligence or aptitude alone. Measurement of aptitudes, particularly vocational aptitudes, has been found less useful.

Many factors contribute to school outcomes. Studies have been conducted that address the role played by school sector and culture, socio-economic status, gender, region, ethnicity, indigenous status, homework, motivation and psychological factors. However, cognitive ability itself has a strong relationship with academic and education progress outcomes. Cool and Keith (1991) collected data from 28,051 high school seniors and found that both cognitive ability and academic coursework have strong direct effects on achievement. Other factors such as homework and motivation were found to have indirect effects.

Evidence for a common or general ability factor 'g' underlying performance on all cognitive tasks has been reported throughout the twentieth century (e.g., Thorndike, 1986). This g factor was first identified by Spearman in 1904 and appears to be the dominant component of variance in all measures of complex cognitive abilities (Jensen, 1992). Carroll's (1993) seminal empirical synthesis of around 500 cognitive research studies demonstrated eight factors of cognitive abilities: Gf, fluid reasoning; Gc, comprehensive knowledge; Gv, visual processing; Ga, auditory processing; Gs, processing speed; Gsm, short-term memory; Gtr, long-term retrieval, and Gq, quantitative ability. Perhaps in part due to the major evidence presented by Carroll and other researchers of intelligence and ability measures about what predicts outcomes and what does not, the use of differential aptitude tests decreased significantly through end of 20th century.

History shows that the best way to predict future performance is to examine past performance. A study by Marks, McMillan and Hillman (2001) investigated student performance among Australian student in their final year of secondary education. They found a strong relationship between Grade 9 achievement and tertiary entrance

performance. They also reported that the numeracy component of achievement had a stronger influence than the literacy component.

Thorndike (1986) suggested that for prediction of school grades in any subject, the Verbal Reasoning and Numerical Ability tests of the *Differential Aptitude Tests* were at least as good as any other test in the battery. McNemar (1964) reported that Verbal Reasoning is the best single achievement predictor overall, and Numerical Ability is the best predictor of achievement in school mathematics.

Omizo (1982) also investigated the predictive validity of differential aptitude tests for high and low achievers in an American high school for engineering. Notable among his results was that mechanical reasoning tests did not predict outcomes.

Marriott and Care (2004) explored capacity of achievement and aptitude tests for academic outcomes. Achievement tests included *The Progressive Achievement Test: Mathematics* (PAT Maths; 1984), intended for use in Australian schools to assist teachers to determine the level of achievement attained by students in their basic skills and understandings of mathematics; the *Progressive Achievement Tests: Reading Comprehension* (PAT Reading Comprehension; 1986), designed to measure two major aspects of reading skills - factual and inferential comprehension of prose material. Aptitude tests included the Australian version of the *Differential Aptitude Tests* (DAT; de Lemos, 1989), generating scores for Verbal Reasoning, Numerical Ability, Abstract Reasoning, Clerical Speed and Accuracy, Mechanical Reasoning, Space Relations, Spelling, and Language Usage. The results show that 59% of the variance in final school performance was explained by measures of verbal and numeric ability such as spelling, comprehension and language usage, and mathematics. Specific aptitude measures such as spatial ability, mechanical perception, etc., contributed very little to longitudinal outcomes.

Marriott and Care's (2004) results are also supported by achievement research provided by McNemar (1964), Thorndike (1986) and Wilson (1989) who indicated that verbal and numeric performance were the best predictors of school grades. Marriott and Care concluded that students should not see their performance as determined by genetic predisposition to acquire knowledge but rather by the effort they are prepared to put into their studies, and their interest in acquiring and applying knowledge via their school subjects, extra curricular activities, and generally taking an inquisitive and active approach to their lives.

BELIEFS, DECISION-MAKING, AND "PERSONALITY TYPE"

Another aspect of the "power" of ability or achievement measurement is how it serves as feedback to inform students' self-efficacy and performance outcomes. Self-efficacy refers to a person's beliefs about

his or her ability to perform the particular behaviours or courses of action (Bandura, 1986) that are required to attain the desired career performance indicators. This in turn can influence performance goals and levels. This perspective has clear links with Gottfredson's (2002) proposition concerning the compromise of interests in the face of the realities of actual performance as students progress through adolescence and begin to understand how opportunities are circumscribed by life factors. In this context, research in the 1980s and 1990s around career beliefs and decision-making generated a number of tools that were used in career counselling, and sometimes for careers guidance. Among these were the Career Beliefs Inventory (Krumboltz, 1992) which emphasised the salience of beliefs about work in facilitating or blocking decision-making at critical choice points. Another practical tool was Harrington and O'Shea's (1982) Career Decision Making Inventory. Such tools were more frequently used in the tertiary sector in the United States than more widely. These tools were designed to reflect immediate issues for a student rather than a longer term career guidance perspective.

Although nowhere near as widely used as measures of abilities and interests, some career guidance professionals have included assessments of personality in their practice. Most such measures tend to be peripheral to mainstream personality measures used by psychologists or clinicians, and include tools such as the Myers-Briggs Type Indicator (Myers, McCaulley, Quenk, & Hammer, 1998). This tool was claimed to be based on Jungian theory, and structured around ways of perceiving and ways of judging. The typology described people in terms of their preferences for particular styles in positive terms, for example "People who use the sensing mode are engrossed in what is around them, look only for facts, and find it less interesting to deal with ideas or abstractions. Intuitive people like to dwell in the unseen world of ideas and possibilities, distrustful of physical reality. Whatever mode people enjoy using and trust most, they tend to employ from an early age and refine over a lifetime". The tool was used widely in workplaces by human resource professionals and organisational consultants, with a focus on individuals understanding how different personality types might interact in the work environment. It was also used to a lesser extent by extrapolating the type descriptions to the assumed characteristics of individuals within specific work roles, with consequent identification of suitable jobs based on individual type.

INTERESTS

Interests, as conceptualised by Holland (1985), are hypothesised to predict the degree to which an individual will find a good person-job fit, based on matching the individual's interests to activities within occupational environments that would allow those interests to be fulfilled. Low et al. (2005, p. 717) stated: "Broadly speaking, individuals' interests reflect preferences for behaviors, situations, contexts in

which activities occur, and the outcomes associated with the preferred activities. In addition, they are part of individuals' self-concept and play important roles in organizing and maintaining effort in daily activities as well as in long-term planning". In addition, SCCT proposes that students are more likely to develop interests in a particular career pathway if they believe they have a strong ability or can perform well in that area. In the decades since Holland addressed the impact of career interest there has been extensive research conducted to develop assessments to test the validity of the theory. Rounds and Tracey (1993) in particular tested the validity of Holland's proposed structure of interests across cultures. The clustering of the types was affected by specific cultural values and perceptions (Tak, 2004; Sverko & Babarovic, 2006; Leung & Hou, 2005).

Measurement of vocational interests is often included by schools in their guidance of student choices of subjects within school, as well as a method of alerting students to their need to think about post-school choices. Research through the 1980s-1990s focussed on the strong predictive capacity of students' interests for their choice of school subjects (Care & Naylor, 1984), and of tertiary choice (Care, 1996; Naylor, Elsworth, Care & Harvey-Beavis, 1997). Through adolescence, stability of interests increases. Some interests tend to be more stable than others, for example, interests in the practical/technical/manual areas and in artistic areas. Interests in entrepreneurial pursuits tend to emerge the latest of all, with investigative and social interests in the middle range. Low, Yoon, Roberts and Rounds (2005) meta-analysis demonstrated that stability of interests increases through adolescence with a plateau post school as shown in Figure 2. Notwithstanding the gradual increase, Low et al. suggest that the act itself of measuring vocational interests may help students to stabilise their interests. Research through to 2016 demonstrates that the best predictor of vocational choice remains indisputably interests (Volodina & Nagy, 2016).

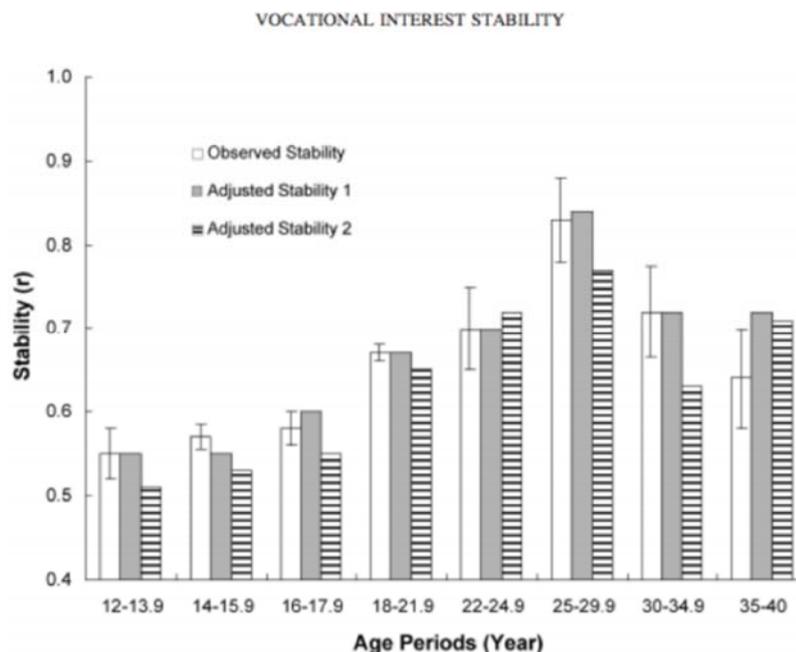


Figure 2: Population estimates of mean interest stability across age categories

Interests have a particularly strong influence in sustainability of career pathway. For example, Sax (1994) found that “life goals” were significant predictors of persistence in science, math, and engineering. For example, it was found that a desire to raise a family was a negative predictor of persistence, while the importance of making a theoretical contribution to science was a positive predictor. Porfeli, Lee and Weigold (2012) found that students are more likely to approach tasks they feel will have positive outcomes and will develop related likes and goals from such scenarios. The opposite was also found to be the case, where students avoid tasks they expect to fail, developing dislikes and future avoidance (Bandura, 1986; Lent et al., 1994). Therefore, career exploratory outcomes can strengthen students’ self-efficacy, and develop preferences and occupational options (Lent et al., 1994; Patton & Porfeli, 2007). Blustein (1997) advocates the context of school as a major component of the formation of students interests. Seymour, Hunter, Laursen and DeAntoni (2004) found that teachers’ engagement of students in a subject can be the driving force to foster their initial career interests. Another study found that career interests and confidence in career choice were highly correlated with each other and with school interests and engagement (Vondracek & Skorikov, 1997). The authors of the aforementioned study also stress that stability of career interest is not only dependent upon school experience, but also dependent upon work place participation.

Interest assessments can support conversations around which interests can be applied in a variety of occupations. One such instrument is the Strong Interest Inventory which was the first

assessment of interest and developed in the 1920's. It is still widely used today, with four revised versions to maintain relevance in the changing workforce, and many online versions have been developed for ease of access and automated reporting (Hansen, 2000). It is a self assessment instrument now containing over 300 items asking students about their preferences regarding occupations, subject areas, activities, people and characteristics. On average it will take a student 40 minutes to complete. Once completed students receive a report containing several sections including: General Occupational Themes, Basic Interest Scales, Occupational Scales, and Personal Styles Scales. The General Occupations Themes is based upon Holland's six types of interests: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. Each student's scores are compared to the average scores for their gender to identify their interest levels for each of Holland's types. The Basic Interest Scales provide students information regarding their top interests based on work and leisure activities they have identified as most enjoyable. The results of the Occupational Scales are occupations selected from a list of 122, that people with the same interests have entered into. To aid in further career research the Personal Styles Scales provide students with a list of their preferences regarding work style, learning environment, learning style, and team orientation.

While the Strong Interest Inventory compares the interests of the students to those of groups of people in particular occupations, the Kuder Occupational Interest Survey provides a student's scores along ten vocational interest scales: Outdoor, Mechanical Clerical, Computational, Scientific, Literary, Social Service, Persuasive, Artistic and Musical (Kuder & Diamond, 1979). Test results are presented as percentile scores with the student's score indicated on each scale. Students are presented with over a 100 questions presenting three activities from which students must choose their most and least preferred in each. The test takes approximately 30 minutes to complete. Although the 10 vocation categories differ to Holland's six types, the results can still be interpreted in terms of those.

Holland's Self-Directed Search (SDS; Holland, Fritzsche, & Powell, 1994) differs from other interest inventories in that students can score and interpret their answers themselves (Lowman & Carson, 2003). The sections of the SDS include: Occupational Daydreams, Activities, Competencies, Occupations, and Self-estimates. Students are required to check the options they endorse and their scores contribute to summary scores for each of Holland's six types. Students can work out their Holland code which is the rank order of Holland's six types of personality based upon the answers the student provided, the code being the first letter of the type (e.g. RIASEC meaning most of their answers were associated with the Realistic type). Generally, only two or three codes will be associated with the majority of students'

answers. Each Holland code is associated with a variety of occupations that students can further investigate.

There are many other interest measures, with no single measure universally superior for use in all circumstances with all populations (Ebb & Russell, 1998). The Strong Interest Inventory remains one of the most widely used as it is so frequently updated. The SDS is often used as it is very accessible to students without any support required for scoring or interpretation (Lowman & Carson, 2003). Most of the literature on comparisons of students interests with chosen occupations rests upon pre-conceived coding of occupations into Holland interest codes. The Strong Interest Inventory uses empirically derived criterion groups to generate interest groupings but it is still limited in the number of included occupations. More research is required to identify whether the matching of occupations with the codes are, and remain, accurate and whether additional occupations need to be added to maintain relevance in the current workforce. Further, if a student's mean interest is taken as the guide with which they explore potential occupations this does not necessarily equate to the occupation of most job satisfaction, another area with which the field is lacking in empirical research. There is an abundance of research that establishes strong relationships between interests and personality (Lowman, 1991) but additional research is required to investigate relationships between ability and interest.

VALUES

Many aspects of Super's theory are attractive such as vocational developmental tasks, developmental stages, career maturity and life roles. The theory takes into consideration the reciprocal influence between the student and their environment, including culture. The process of career selection involves personal construction recognising the effects of subjective cultural values and beliefs in shaping vocational self-concepts and preferences. There are aspects of Super's theory that need to be examined across cultures such as variations in the importance of self in decision making and the extent and weighting of family input in making such decisions. Values such as family harmony or loyalty may well influence a student's understanding of themselves, and as such the decisions they make regarding their career pathway. The Career Maturity Inventory (CMI) was one of the first measures which presented items representing the construct of attitudes and beliefs in relation to career decisions. The items on the test were developed from statements made by students in career guidance sessions, in particular relation to orientation toward intrinsic rewards, decisiveness, realism and independence in decision making (Crites, 1965). The CMI has been used extensively as a basis for discussion in career guidance sessions (Savickas, 1990) and to identify students' readiness for specific careers (Savickas & Porfeli, 2011).

Super and colleagues examined the degree to which work values reflect the presumed value system of particular ethno-cultural groups. Sverko (2006) reported on value patterns across ten countries, including Australia and Japan. The latter was the only Asian culture country included in the Work Importance Study. Sverko (2006) concluded that for secondary school students, the structure of values was very similar cross-nationally, although specific national patterns of values may differ. For example, Australian samples score high on Lifestyle (freedom to live according to personal standards and values) and Autonomy (responsibility for own actions, and low on many other values, including such as Aesthetics and Creativity). The Japanese, in contrast, score high on Aesthetics, Creativity, and Risk. In their summary of the Work Importance Study, Super and Sverko (2006) comment on values differences across three major clusters of countries – the “New World”, Europe, and Japan, pointing out that the latter is the only country with Shintoist-Buddhist traditions. Their reports confirm other findings of broad patterns of similarity in values across different cultures, along with some specific sample differences attributed to different cultural and technological conditions.

GLOBAL PERSPECTIVES

The differences in career guidance approaches across and within countries will be dependent upon socio-cultural factors, economic development and training practices. Generally, career guidance has been found to have positive effects on overall learning outcomes and found to empower students by equipping them with better decision-making skills and making them well aware of learning opportunities (Killeen, White & Watts, 1992; Rosen, 1995; Watts, 1996). Lapan, Gysbers and Sun (1997) found that providing guidance services to students can have a positive impact on the quality of their educational and professional decisions, and also on their educational performance. Ultimately, to have effect career guidance the approach needs to be flexible in order to maintain links with the needs of the labour market (Watts & Fretwell, 2004). From analysing research in the field and practical advice from practitioners, Ho (2008) has outlined six components of career education:

- Formulate a career guidance curriculum
- Link study opportunities and career choices
- Organise school-wide career guidance activities
- Facilitate learning experiences about work
- Enable individual learning portfolios at secondary level
- Provide guidance and counselling for students

COUNTRY EXAMPLES

In Singapore, the Ministry of Education (MOE) has identified and developed a framework for 21st century competencies and student outcomes with the explicit expectation that schools and parents work collaboratively to support students in developing these competencies (<http://www.moe.gov.sg/education/21cc>). Career guidance is built into the school programme through its domain of social and emotional learning. Education and Career Guidance (ECG) has been positioned as part of the *Character and Citizenship Syllabus*, that was rolled out to schools in 2014. Under this curriculum, the ECG Syllabus will involve all secondary students experiencing a minimum of four hours of explicit ECG Lesson delivery. In Singapore, students have been provided career guidance lessons since 2012 which are conducted by teachers, and supported by counsellors. The country developed 'SkillsFuture' which is intended to support Singaporeans with the opportunities to develop to their fullest potential. Part of this project focused on providing training for career-orientated counsellors in 2014, with one counsellor allocated up to five schools. Students also use an interactive web-based ECG portal, www.ecareers.sg, to discover their own strengths and interests, and engage in education planning and career exploration. A set of common outcomes and learning objectives were written into the new curriculum surrounding career planning to better achieve consistency and quality across institutions. The focus of career guidance in Singapore is to make career decisions aligned to students' strengths, values, interests and ability. The ECG model is presented in Figure 3 showing three progressive phases: career awareness, career exploration, and career planning. In addition to these phases student built self-identify by understanding their own interests and values, identifying their strengths and abilities to formulate their life roles.

To help identify how the framework is being rolled out in schools a subject leader from a junior college in Singapore was contacted. They stated that 1:1 counselling is mandated and class time outside of specific learning areas is set aside to conduct this during the last year of junior college. There is generally one or two career counsellors per school, usually the level head in their final junior year. The school based career counsellor is responsible for organising students' career portfolios, resources. In addition, there is one external career guidance counsellor who is assigned to up to four schools and attends each school approximately once every fortnight. They provide support and training to teachers in the school and are responsible for establishing links to industry and inviting various parties, including university representatives, into the school for presentations. To gain further insight into the plan for career guidance in Singapore a representative from the MOE was contacted.

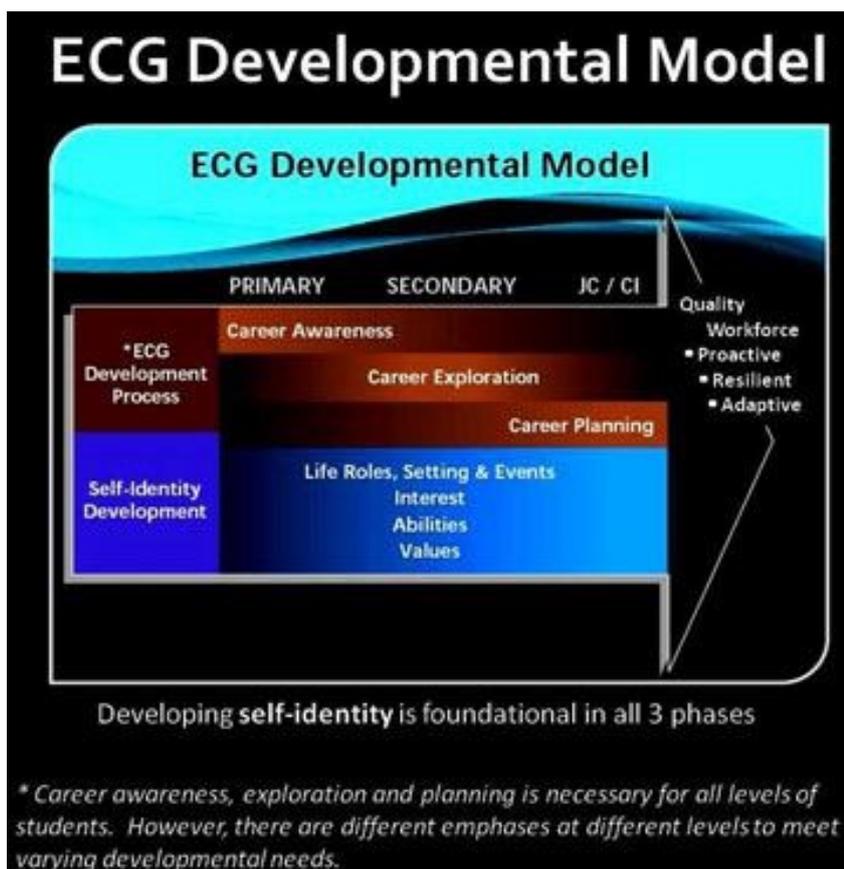


Figure 3: Developmental model of ECG

In Hong Kong career guidance is anticipated to be empowering, allowing the students to make choice and decisions from a holistic perspective. From 2014 a new subject was set up in Hong Kong schools titled 'Life Planning Education'. This was to enable a paradigm shift from thinking about career guidance as an advisory or ad-hoc approach to helping students make informed, calculated decisions. Previously the approach taken was to provide 'problem solving' services to progress a path for students at critical schooling exit points based on academic achievement (Ho, 2008). Students are now taught about careers in relation to the qualification framework so they can make informed choices about which subjects to take. In addition, and perhaps most critically, they aim to raise students' awareness of their own interests and abilities. To assist in implementing this new approach to career guidance the Hong Kong Education Bureau have developed the Guide on Life Planning Education and Career Guidance for Secondary Schools (2014), locally known as "the guide". The term 'guide' is purposeful since it is intended to be a recommendation for best practice, not a mandated checklist.

The guide was based on the guidance framework of Gysbers (2000; see

Figure 4) which:

“consists of three elements: content, organizational framework and resources (Gysbers & Henderson, 2000). The content element identifies competencies considered important for students to master as a result of participation in a comprehensive guidance program. The organization framework consists of three structural components (definition, rationale, and assumptions), and the four program components (guidance curriculum, individual planning, responsive services and system support). These resource elements consist of personnel, financial, and political resources required to fully implement the program” (p7).

Zucker (2007) comments that the strength of the framework rests on its generalisable application to different settings. The framework incorporates school professionals, community and parents and its flexibility allows for local development of needs. Gysbers (2000) guidance framework allows educators to plan and select essential components from the framework to suit the scope and needs of the implementer. A central focus of the framework is the requirement of a dedicated guidance curriculum that links academic subjects with career prospects, involves community and enables student individual planning.

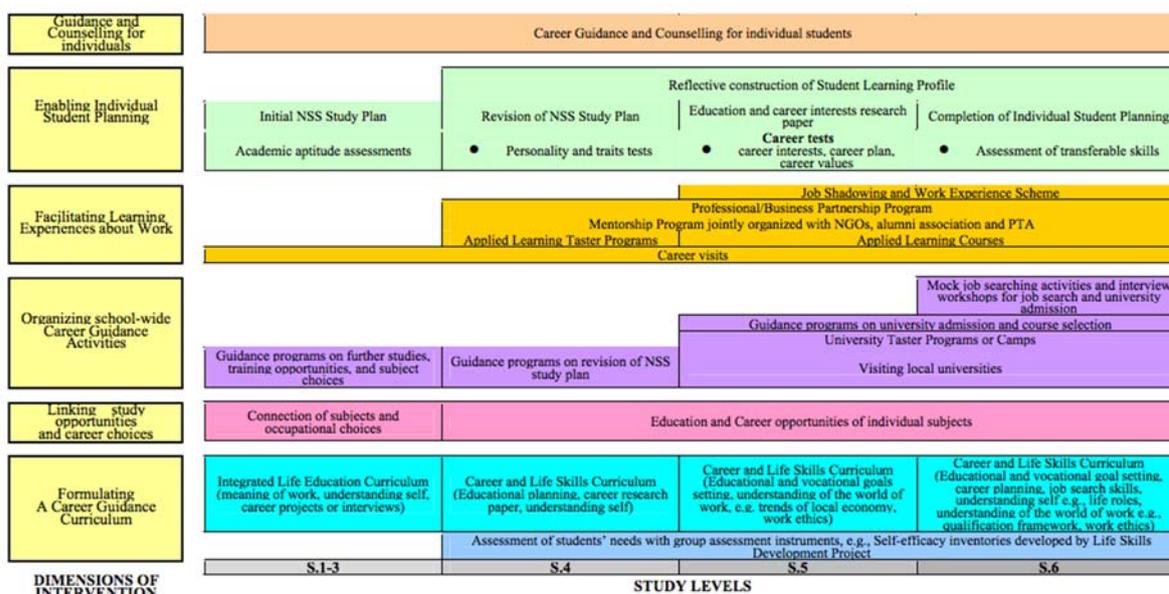


Figure 4: An exemplary framework enhancing career related experience for secondary school students (Hong Kong Association of Careers Masters and Guidance Masters presented in Ho, 2007)

In Hong Kong career guidance focuses on knowledge, skills and attitudes. At the start of secondary school students will take an academic aptitude test to help identify the best pathway and study options. The aptitude test assesses literacy, numeracy, reasoning and language skills. In the last two years of schooling the focus of career testing relates to interests and values. Individual Student Planning (ISP) Portfolios for junior and senior secondary students have been implemented since 2009, providing practical and supporting tools for career and life planning at different stages of schooling. The major components of the tools focus on self-understanding, interests, aspirations, personalities, and resources for decision making. In addition, the portfolios make links to further studies and alignment to various progression pathways in the New Senior Secondary Curriculum.

The government has advocated that each school establish a Career Team that involves senior management, teachers, admin staff and parents (see Figure 5). It is anticipated that the Career Team will formulate the school's policy in career guidance, oversee its operation and support other members of the school community to engage effectively with the program. To facilitate the implementation of the career guidance program schools are encouraged to release teachers to attend professional development courses. A new 'Certificate Course in Career Education for Secondary School Teachers' has been developed and the government has an objective of training at least two members of the Career Team from each school complete the course across a period of three years from 2014-2017.

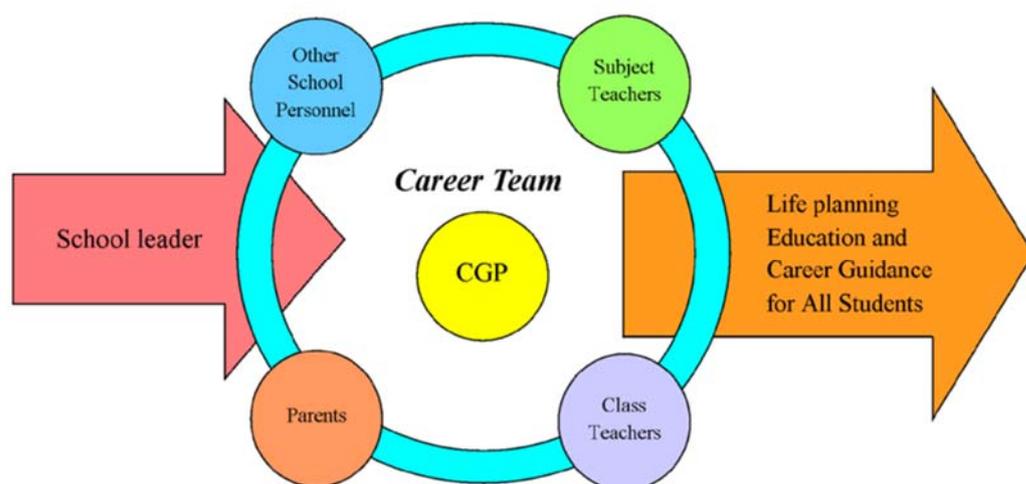


Figure 5: School personnel involved in the career guidance program (sourced from Hong Kong Education Bureau, 2014)

There has been heated debate in Vietnam where 16.8% of the unemployed are educated at University level (Loan & Van, 2015). It is anticipated that this issue stems from a lack of career education, especially in regards to making decisions based upon interests, values and passion, rather than just achievement during school (Anh, 2014). Career education in Vietnam thus far has been general, not focusing on individual counselling or needs. Chuan et al. (2013) stated that the objectives and methods of career guidance in Vietnamese secondary schools are not keeping up with the demands of the the modern workforce.

In 2012, Australia developed their first National Career Development Strategy (NCDS) to generate a more coherent approach to the design and development of career programs and resources. The strategy recognises career development as a lifelong process, with benefits to many policy areas, and aims to ensure every person is supported. At the school level three specific aims are expected to be achieved by 2020: inclusion of career development in school curriculum across all years, increasing students exposure to the world of work and possible career pathways, and ensuring educators are equipped with qualifications and resources to sufficiently guide students. In Australia, the Australian Curriculum, Assessment and Reporting Authority (ACARA) have outlined educational goals for students that highlight seven 'General Capabilities': literacy, numeracy, ICT capability, critical and creative thinking, personal and social capability, ethical understanding and intercultural understanding. The NCDS reports that teaching and learning resources will be developed which support educators to deliver career guidance incorporating these general capabilities. The Australian Blueprint for Career Development provides a comprehensive model for considering student outcomes from career development provision (MCEEDYA, 2010). The Blueprint outlines eleven competencies across three key areas (personal management, learning and work exploration and career building). These eleven key competencies are illustrated in Figure 6. The framework can be used to design, implement and evaluate career programs for students.

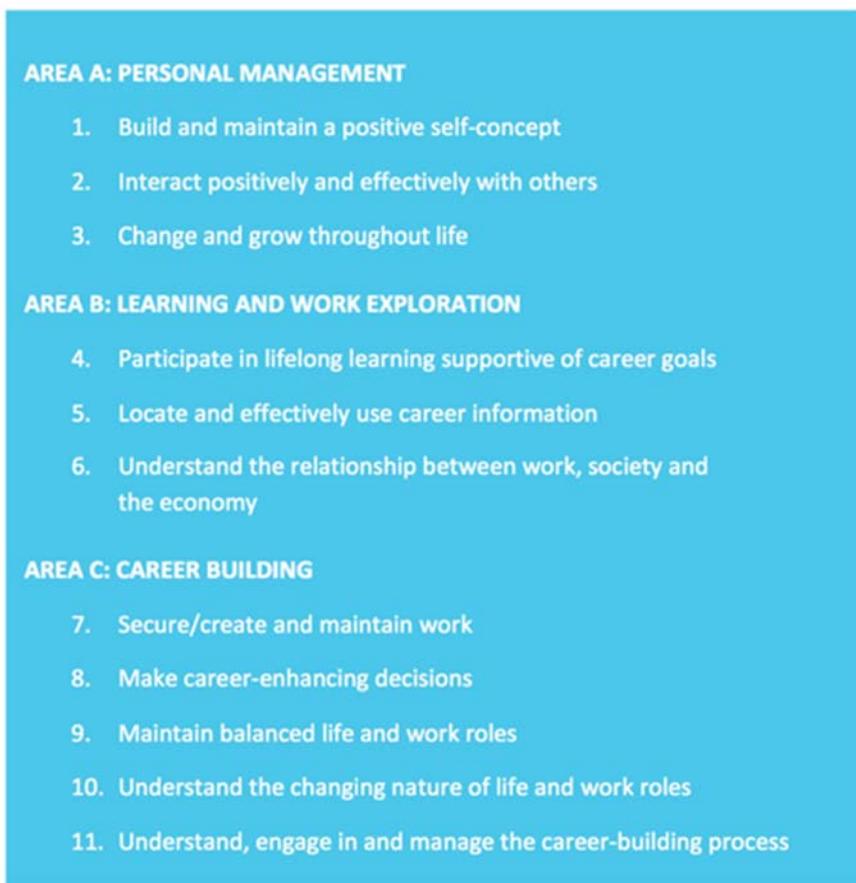


Figure 6: The Australian Blueprint for Career Development 11 competencies

In addition to the national blueprint each Australian framework identifies three stages of career development: self development, career exploration, and career management. The framework is presented from a student's perspective and they are expected to work through six steps during every year level: I discover, I explore, I focus, I plan, I decide, and I apply. Career guidance staff are expected to help students discover their strengths, explore work options, focus on their values and interests, use decision making skills to plan their learning pathway, decide on their best options and apply their skills and knowledge to their career planning (Victorian Department of Education and Training, 2013).



Figure 7: Victorian Careers Curriculum Framework

To investigate the implementation and interpretation of this framework at school level a school in Australia was contacted for input. The lead career practitioner from the identified school stated they have a dedicated career development team who implement a program from years 7-12. In years 7-9 this primarily takes the form of invited external guest speakers from industry, subject selection support, and a school-based careers website providing resources including documents supporting parents in the process. At year 9 there is a Career Development Immersion week involving an interactive participation program covering work preparation, financial independence and career planning. In years 10-12 there are optional resume preparation, mock interviews, fortnightly careers newsletters, and information evenings. There are compulsory work experience periods for year 10 students and compulsory individual interviews for year 12 students. Parents are invited to information evenings and offered further support by email or telephone. The school provides students with vocational assessment tools which question students on their interests and values before presenting them with a list of suitable careers. However, they acknowledge that there are eight skills that are essential for successful employment in today's world of work: communication, teamwork, initiative, problem solving, self-management, organisation, technology, and learning. They specify that these skills are transferable and generalisable and will assist students in not only obtaining suitable employment but maintaining it.

IMPLICATIONS FROM GLOBAL EXAMPLES

From the examples provided, it is clear that the main areas that are assessed, in order to guide students, are strengths, interests and values. The way these are assessed vary but the majority are assessed through career guidance counsellors trained and supplied by the government or through developed online testing portals. Additional resources are provided to students by way of career catalogues or information packs. In the U.S. the National Center for Education Statistics found that 92% of schools provided career catalogues, 1:1 counselling sessions and computerised career information (NCES, 2003). In addition, approximately 85% of schools provided subject-specific career information, work experience programs, dedicated group career events, job seeking skills training, speakers in class, and tours of graduate institutions. The statistics indicated that the most frequent activity was the 1:1 career guidance sessions, and the most infrequent the work experience programs. In Australia, similarly one of the most popular career guidance activities was 1:1 discussion with a career counsellor with 87% of year 10, 11 and 12 students reporting they had engaged in this activity (Rothman & Hillman, 2008). The most popular activity was distribution of handouts and written materials with 95% of students receiving these in year 10. The Australian Centre for Educational Research conducted a study on the perceived usefulness of these career guidance activities based upon student background information. They found that, regardless of location, social, or economic status, students perceived the guidance provided as useful. This has important implications for young people from disadvantaged communities (Rothman & Hillman, 2008).

From evaluation of global perspectives, it appears the reviewed education systems perceive career testing as one of several activities that should be provided to guide students in choosing their vocation. Krumboltz and Levin (2004) advocated that testing of interests and values should be used to stimulate learning and not just to match students to vocations. The outcomes of the tests should be used to stimulate discussion surrounding students' interests, values and strengths and which careers these are best associated with. In many countries assessments of interests and values are generally taken in dedicated career guidance classes or in a students' own time. From the literature it is unclear how the outcomes of these assessments are being used at system level to inform their planning for numbers of students to enter particular subject's streams or how economic demands are being relayed at school level. Many countries have developed infrastructure for ensuring effective career guidance including establishing links and protocols between school and system levels (Gikopoulou, 2008). However, there has been little research emerge in evaluating the effectiveness of these infrastructures or their outcomes. Killeen et al. (1992) suggested that career guidance can

assist the job market economy by supporting individual decisions, reducing labour market failures (such as drop-outs from training), and contributing to institutional reforms (such as open learning).

ASSESSING IMPACT

Perhaps one of the biggest difficulties in career guidance is identifying predictive capacity of tools used, leading to a lack of evidence-based evaluative practices in the field. Very few countries have evidence based data regarding their career guidance service provision. Collaboration at national level among service users and practitioners would help to identify relevant and useful data for evaluating optimal processes and actual outcomes for career guidance provision (OECD, 2004). In summary immediate outcomes might relate to students' knowledge, skills and motivation. Students may have an increased awareness of opportunities, develop action plans or enhance decision making skills. Longer term outcomes would relate to the success of the student in finding, and perhaps sustaining, a suitable career or training program. Longer term outcomes may be realised through economic or societal factors such as increased productivity or greater inclusion.

RECOMMENDATIONS

The current trends in career guidance are to help students understand their interests and abilities, to provide them with career and further education information, and guide them to understand the links between these factors. The majority of guidance that occurs within formal education systems encourages students to be realistic about their aspirations. To do this, students are pointed to their current achievement records, and to any differences that there might be in achievement across different subject areas. To illustrate, at the most simple level students who say they want to be engineers, but do not achieve well in mathematics and some sciences, would be guided to review this aspiration. This might be achieved by ensuring the students understand what the occupational activities associated with engineering are, and its strong reliance on mathematics and science; and then advising the students to review their current progress in school. At this level, career guidance is about reality checking.

If using measures of student characteristics in order to support the guidance process, it is important to use culturally and generationally relevant theory-based career tools and resources. Adaptations to any existing tools or frameworks need to be clearly documented so that their validity is easily verifiable.

The main approach to current guidance in this second decade of the 21st century is: 1) encouraging students to find out about educational and occupational options; 2) ensuring that students reflect on their

current educational achievement; and 3) checking their aspirations against their realities. To achieve this approach, an educational system needs to ensure that their teaching and assessment system can provide a student with accurate information about their progress. In addition, the system needs to have access to career information resources. Such resources will include external and internal websites for career exploration, guides for students, teachers and parents, and school based guidance and counselling. Career guidance should be implemented throughout secondary school, not just presented at critical exit points. This will enable students to prepare and explore pathways sufficiently.

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ACTRC is a partnership between the University of Melbourne and the University of the Philippines, supported by the Australian Government

