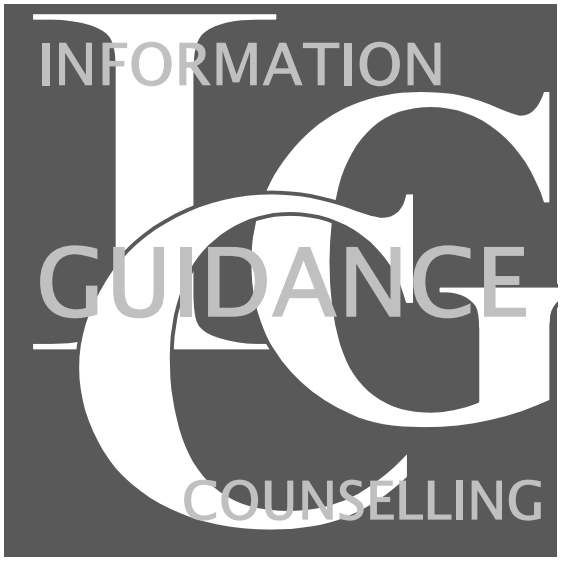
IMPROVING OCCUPATIONAL INFORMATION



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1. SUMMARY

Improving occupational information is possible. It entails:

- Ascertaining exactly what users need to know, and what their questions are; this should be done empirically and be updated regularly, distinguishing between the various categories of users.

- Helping users to identify their needs and ask themselves questions, not only during interviews with counsellors but also through the study of documents.

- Ensuring that materials distributed are accurate and up to date, precise and non-discriminatory.

- Designing documents with comprehensible content; this means tailoring the level of language to the user and making proper use of multi-modality (text, images, animated graphics, sound).

- Fostering direct and guided contact (preparation, execution) with the world of work through internships and visits.

- Being relevant, i.e. seeking to provide responses to users' questions (or to their needs), and to do so when documents are being designed as well; also entails knowing what users know, what they do not know, and what they think they know, along with their misconceptions about the occupations, careers and courses of study about which they are being informed.

- Recognition as being relevant, i.e. building users' confidence in counsellors and sources of information.

- Designing documents that are usable, i.e. accessible, easy to handle, not leading the reader into errors of manipulation or dead-ends, inducing a sense of satisfaction and not of time wasted.

- Designing documents and services that are acceptable, i.e. compatible with the practices, tools, conventions and values of the social milieu in which they are to be used.

- Consolidating the collection, sorting and validation of resources at the regional and/or national level.

- In short, taking a pedagogical approach to information design, or even seeking truly to "educate" users in the use of information.

2. INTRODUCTION

Providing individuals with relevant sources of information and guidance about occupations and careers is an important challenge in the current social and economic context. But delivering those sources and that guidance is not easy. There are many barriers that prevent individuals, whether young or old, from gathering information in this area. People may not know what information they need; they may not know where to get it once they realise they need it; they may not be aware of the existence of various sources of information; and, in some cases, information may very simply not exist (Harris & Dewdney, 1994). Moreover, numerous studies have shown that individuals are not necessarily aware of their own difficulties in this area (e.g. Julien, 1999).

Improving occupational information means being able to define what information is, and what constitutes good information. It is then necessary to examine the particular characteristics of information in the realm of vocational guidance. In this way, criteria can be set and consideration given to what already exists in order to ascertain what can be improved, and how.

The approach presented here will endeavour to avoid redundancy with Plant's (2001) EC/OECD report, *Quality in Careers Guidance*. Chapter 3 of that paper is entitled "Occupational and Educational Information Quality". In it, Plant reports on the guidelines set forth by professional organisations such as the NCDA in the United States for the preparation and evaluation of papers dealing with information on occupations and careers. That chapter would not be out of place in this report, and all of the avenues presented in it should be borne in mind. Likewise, we shall not look in detail at the role of information and communications technologies (ICTs) in the realm of guidance, which is the topic dealt with by Watts in his EC/OECD report (2001).

2.1 What is information?

In this report, following for example Dervin (1999) or Peterson et al. (1996), we consider information as new knowledge that a human subject constructs after processing data obtained from his/her environment or from him/herself. The environment is in part symbolic: it may contain discourse produced by other human beings, and this discourse can be either oral (e.g. uttered during a meeting) or written (e.g. documents). These conditions are necessary but not sufficient to constitute information. For instance, discourse may not lead to any new knowledge (i.e. to any information) if its content is already known or if it is incomprehensible. In the realm of education, constructivist approaches often take the view that content must also correspond to a need or a centre of interest of the recipient in order to produce new knowledge and therefore information.

We concur with Sperber and Wilson (1995) that in any discourse produced there is an informative intent (the intent to inform the recipient of something, to convey content) and a communicative intent (the intent to inform the recipient of this informative intent). If the recipient is to interpret the message correctly, he or she must recognise that the issuer is striving to be relevant, and thus must recognise both the informative intent and the communicative intent.

We further agree with Grudin (1992) that a document, and more broadly an information system, must be useful and usable. We would add that a document or an information system must be acceptable, i.e. compatible with the practices, tools and conventions of the social milieu in which it is to be used. In a classical manner, we agree that the usefulness of information is synonymous with its relevance (Mizzaro, 1998), and thus that useful or relevant discourse is discourse that answers the user's questions or needs. We shall use the definition of usability proposed by Nielsen (1993).

Lastly, we would add that, in the realm of occupational guidance, information must be true.

From these definitions, we can extract seven criteria which will enable us to ascertain what constitutes good information.

2.2 Which criteria should be selected?

Occupational information is formulated on the basis of discourse that must:

- Take the recipients' informational needs into account;
- Be truthful;
- Be comprehensible;
- Be relevant;
- Be recognised as being relevant.

If the discourse is conveyed via documents or information systems, those media must not only meet the above criteria, but they must also be:

- Usable;
- Acceptable.

2.3 Presentation of the report

This report is made up of seven chapters numbered 3 to 9, corresponding, successively, to the seven criteria enumerated above. In each case, a brief introductory paragraph attempting to situate the criterion within the context of occupational information is followed by three sub-chapters: definitions, common practice (corresponding to that of guidance counsellors in particular), and documents. Chapter 3, devoted to taking needs into account, is the most fully developed.

3. TAKING NEEDS INTO ACCOUNT

Brown (1999) affirms that information is not just a commodity, and that in the guidance sector its complexity has been under-explored. This and other articles currently place access to and dissemination of information at the very heart of career guidance and management. And yet, while the quality, validity and even the ethics of information, along with problems of usage and interpretation, are covered (see Carroll, 2000), the questions and needs of users are rarely addressed in detail.

Julien (1999) identified and categorised the main difficulties of adolescent Canadian students in accessing guidance information (Table 1: note that the proportion of respondents answering "false" is the difference between 100% and the percentage indicated in the right-hand column; e.g., on line B, 37.9% of respondents indicated that they did *not* know how to get skills in job searching).

Table 1. Barriers to access to information, according to Julien (1999)

	Respondents Answering "True"	%
A.	I know how to find out about opportunities for continuing my education	89.4
B.	I know how to get skills in job searching	62.1
C.	I know how to find out about different jobs I might enjoy	76.8
D.	I feel confident about asking for the information I need	76.6
E.	I know how to find out about getting money to support my education beyond high school	43.0
F.	I think that there are places where I could find answers to questions about my future	86.8
G.	I know what courses I need to take in high school so I can achieve my career goals	62.0
H.	I know what grades I need in order to achieve my career goals	61.7
I.	I find it difficult to find out about everything I need to make a career decision	59.7
J.	I need to go to too many places to get the help I need to make a career decision	39.7
K.	I know what I would enjoy doing for a career	68.5
L.	I know where to go to get answers to my questions about my future	62.4
M.	I know to find out about how to get a job	60.4

It should be noted that 37.6% of the young people questioned said that they did not know where to go to get answers to questions about their future (line L); the same proportion of young people did not know what grades they needed in order to achieve their career goals (line H).

Clearly, many young people—but adults as well—have needs and difficulties in the realm of occupational information. The need to take users' requirements into account is universally recognised in this area (e.g. IAEVG, 1997). Even so, how those requirements are taken into account, and more especially how they are identified, pose many problems. The difficulty of taking informational needs into account is not unique to the field of guidance; there have been far more, and more detailed, studies in areas such as health care (for a summary, see Wilson, 1994).

References concerning occupational information needs are scarce. The study by Bagby and Kimmel (1977) on the informational needs of pupils in small rural schools initially covered a sample of

7,618 schools and subsequently focused on a sample of 500. Significantly, the study examined informational needs as identified by teachers and administrators and not by the pupils themselves. Adults express their needs in terms of informational methods and resources. Stevens (1998) writes that human resource and career management should enable employees to access the information they need in order to understand what is available to them, and give them the information they require to plan their careers. Along those same lines, numerous studies have been conducted to design tools to facilitate guidance for young people. Among them is the research of Maree, Claassen and Prinsloo (1998), which led to the formulation of a questionnaire designed specially for South African secondary school students. The reliability and validity of that tool have been proven; it is used essentially in school situations in which it is necessary to determine guidance options, in mathematics in particular.

This and other studies do not really deal with the questions young people ask themselves, but rather with the questions that counsellors may ask them in order to ascertain the guidance that is appropriate in each of the cases presented.

To sum up, the notion of the users' need for information is central to the realm of occupational information, yet studies showing exactly what those needs are, and to what questions they correspond, are fairly rare.

3.1 Definition

From an initial standpoint, one can consider that the need for information corresponds to the questions that users ask themselves, or that they ask counsellors or agencies. The exact subject of the questions young people ask about occupations and educational tracks is given very little coverage in the relevant professional journals. But there are exceptions. Rufino (1985) highlighted two types of questions: specific questions such as "How many years of school does it take to become a nurse?" and general ones such as "What can someone do with a science-oriented secondary school diploma?" Rufino showed that over a long period students tended to shift from specific to general questions and vice versa.

Tricot (1993) described a task of seeking information as the result of interaction between the representation of the need for information, which may be specific or vague, and the location of the relevant information (the target), which may be unique and localised, or multiple and distributed (Table 2). For users, these different tasks result in different types of conduct, strategies and difficulties.

Table 2. Four information-seeking tasks

		Representation of the need for information	
		Specific	Vague
Localisation of the target	Unique, localised	Seek a piece of information	Explore
	Multiple, distributed	Collect	Browse

From a second standpoint, the need for information is defined according to what is known about the career decision-making process. Such authors note the importance of information about occupations and careers in that process (France, 1990), while highlighting that such information is complementary to other aspects such as self-knowledge, the role of friends and family, and familiarity with the world of work. The process of preparing for and choosing a career entails actively seeking information on the available options, self-knowledge and knowledge of one's own abilities, attitudes, values and interests (Herr & Johnson, 1989).

Lastly, and as a means of comparison, needs may be defined according to what is known about sources of personal satisfaction. Aude-Drouin et al. (2000), for example, identified the following sources amongst a sample of French adolescents and adults: money, the fact of earning a living; the fact that one should enjoy what one does; personal enrichment; and social standing, the fact of having a place in society, and in fact of being useful. Aude-Drouin et al. also noted that the sources of satisfaction were generally identical between young people and adults. But the same authors also pointed out a divergence between these sources of personal satisfaction and the content of certain informational documents on occupations, or even the discourse of counsellors and teachers when speaking to students.

3.2 Common practice

Needs are identified during the interview with the counsellor and the person seeking information about occupations. The counsellor helps the user to identify or to express needs. Counsellors can draw on a variety of studies to help them get a general idea of people's occupational information needs. We shall now discuss that research.

A large number of classic studies offer needs identification solutions predicated on the assumption that those requirements stem from an individual's general needs. Students are considered in terms of their motivations, tastes, interests and vocations (Holland, 1973), but not their questions. This approach based on general needs is widespread and satisfactory at a general level, but it can be insufficiently specific.

Other studies take a differential approach; which is to specify the target and the particular needs of a particular group of people. This research factors in differences related to gender, ethnicity or social identity, or differences in the types of decisions taken—decisions taken by individuals who are rational, intuitive or dependent (Harren, 1979). In his study, Julien (1999) used the same categories and found that in his sample of Canadian adolescents, 47% of the individuals were rational in their approach to their orientation decisions, 40% were intuitive and 13% were dependent. Julien also noted that these categories were not mutually exclusive. Many studies establish categories based on criteria that are simpler and in our opinion more relevant: lower secondary school students, upper secondary school students, higher education students, unemployed adults and employed adults.

Work which focuses on the questions people ask yields results that are fairly different from the above studies. Rufino and Tricot (1994) showed that it was possible to construct broad categories of themes for questions about occupations: nature of the work, working conditions, required qualities, studies needed, access to employment, career prospects. Amiel et al. (2001), along with IAEVG (1997), showed that young people in particular were posing more detailed and specific questions about the curriculum, admission requirements, and the material conditions of completing the programme. They were also interested in statistical information (selection rate, failure rate, drop-out rate).

Amiel et al. (2001) described the guidance-related questions asked by young people aged between 12 and 25 and tried to take account of the fact that the vast majority of questions associate the subject <y> of the question <y = occupations; studies> with another subject <x>, which might be: <the young person's centres of interest; his or her personal characteristics; his or her knowledge of the education system; his or her knowledge of the world of work, and of the economic environment>. Accordingly, all questions on occupations or studies belong to a sub-category, the sub-categories being obtained by cross-referencing their descriptors. This analytical matrix was used to categorise the questions asked by 296 young people visiting an Information and Guidance Centre (CIO), and 8,000 questions submitted to a Web site containing information on occupations and studies (in both samples, the gender breakdown averaged 60% female and 40% male respondents).

Table 3. Frequency of each category of question on the Web and at CIOs

	Web site	CIO
Centres of interest / studies	5.3 %	3.0 %
Centres of interest / occupations	3.3 %	1.1 %
Personal characteristics / studies	9.2 %	6.4 %
Personal characteristics / occupations	1.8 %	3.8 %
Education system / studies	42.9 %	48.0 %
Education system / occupations	19.3 %	15.6 %
World of work, economic environment / studies	8.9 %	7.0 %
World of work, economic environment / occupations	9.1 %	15.3 %

We also note that these authors propose distinguishing amongst five types of questions, depending on whether the question:

- Requests information: What are the <x> characteristics of <y>? (e.g. “What jobs does training in electronics lead to?”).

- Requests advice (open-ended): I am interested in <x>; what could I do in the way of <y>? (e.g. “I am interested in computers; what could I study?”).

- Requests advice (reconciliation): How can I reconcile plans to do <x> and <y>? (e.g. “I am interested in computers and I would like to study art; how could I reconcile the two?”).

- Evaluation (relative): I am interested in <x> and I would like to do <y>; is this a good choice? (e.g. “I am interested in teaching and would like to get a bachelor’s degree in English; is this a good choice?”).

- Evaluation (absolute): I am <x> and would like to do <y>; is this possible? (e.g. “I am fairly weak in mathematics, and I would like to study business; is this possible?”).

The Canada Career Consortium (CCC, 1998) reported on the wishes of 280 end-users surveyed (137 male, 142 female) regarding the content of information resources (Tables 4 and 5).

Table 4. Content of career information resources end-users want to use in the future, according to CCC (1998)

Labour market	151
Work skills	136
Education, training and learning	132
Career building	125
Work search	123
Living skills	94

Note: Numbers correspond to number of times cited

Table 5. Purposes end-users gave for using career information in the future, according to CCC (1998)

Find job openings	146
Find out about training/education opportunities	123
Learn how to improve my employability skills	122
Learn about work alternatives such as entrepreneurship, consulting, contracting	118
Find out what skills I need	117
Learn how to improve my work-specific skills	116
Learn how to find work	115
Find out what I am suited for	106
Learn how to do better in my organisation / business	104
Learn how to manage my career	99
Learn how to change my work	90
Find out who I am	78

Note: Numbers correspond to number of times cited

Authors such as Julien (1999) suggest that people who believe they do not know what their needs are in the area of career fulfilment may well believe that questions regarding their careers have no answer. Gati, Saka and Krauz (2001) showed that difficulties in relation to seeking guidance, and especially a lack of information, were greatest early on in the decision-making process. Rufino and Tricot (1995) suggested that without questions or expression of needs, an informative discourse was not very effective, and that it was by prompting the user to ask questions that the need for information could be induced. Warton and Cooney (1997) stated that individuals sometimes did not even remember having dealt with a guidance-related resource that had been provided to them. Henri and Hay (1994) showed the more widespread value of educating people in the use of information, to help them acquire informational skills such as defining their need for information, locating its source and selecting, organising, presenting and evaluating its content.

A large number of other studies attack the problem at another level, proposing tools and methods to help users identify their needs.

Lastly, to our knowledge, there is scant research that takes account of the fact that needs can shift during an information session.

3.3 Documents

IAEVG (1997) noted that in most cases documents do not help users to express their needs and do not take their needs into account. Traditionally, materials on occupations seem to disregard these needs, and specific needs in particular. Yet today there are simple techniques, based on hypertext, for proposing questions at the outset of a document so that its content, if not its structure, can be tailored to the user's needs and level of knowledge (Tricot & Rufino, 1996; IAEVG, 1997). More generally, Sampson (1999; Sampson et al., 2001) have defined the features of a needs-based Web site in the realm of guidance. He writes:

A "need-based" Web site allows users to:

1. Clarify their needs prior to selecting Web resources

2. Select Web resources based on potential learning outcomes
3. Obtain information on how to use and sequence Web resources to meet their needs
4. Identify the circumstances when personal assistance from a counsellor or other practitioner may be needed to solve their problem
5. Only view links to external Web sites that relate to their needs, thus reducing the chances of following an inappropriate link.

A need-based Web site allows practitioners to create a more intelligent site by incorporating the content expertise of the staff into the Web site. Three key questions to answer in creating the site are:

6. Whom does the organisation serve?
7. What are the needs of individuals served by the organisation?
8. What resources are available (or should be available) to meet the needs of individuals served?

To sum up, analysing informational needs in the realm of guidance is a fundamental aspect of improving information on occupations. Its repercussions can affect the practices of guidance counsellors and the design of interactive documents. A systematic empirical study will:

- Take into account the variations, such as age and possible cultural differences , that exist with this type of analysis and target information strategies
- Follow and evaluate the progress in guidance education for a given population, starting with the relevance of the analysis (the awakening of needs, more precise formulation of questions etc)

A small number of studies have explored these needs. It is necessary to pursue these empirical studies, which seem to be more accurate than those inspired by psychological theories that try to reduce an individual's needs to a handful of one- or two-dimensional variations.

4. THE VERACITY OF THE CONTENT

4.1 Definition

Truthful content is absolutely fundamental in the realm of occupational information. Designing truthful content is difficult because of the dispersion of sources and the often prospective nature of data in this area. Content must be updated, which is expensive. IAEVG (1997, point 7) indicates the need for information to be "accurate, up to date, unbiased, non-discriminatory and gender-fair".

4.2 Common practice

Counsellors have a very important monitoring function to perform. They must keep familiar with the content and the changing reality of the world of work and training. They must deal with an explosion in the number of sources (and Web sites in particular), which entails a vast amount of checking and assessing. According to one study carried out in Canada, the Internet is now the number one source used by guidance counsellors, whereas for users it is other people—but not just counsellors—who constitute their primary source (CCC, 1998). The importance of "human" sources, and especially non-specialists (relatives, friends, etc.), is borne out by a large number of other studies.

In other words, both counsellors and users resort extensively to sources whose reliability is not guaranteed.

4.3 Documents

The general public is increasingly accessing sources directly via the Internet, which constitutes the second-ranked source according to the aforementioned study (CCC, 1998). In other words, the veracity of information content, in respect of documents in particular, is not currently guaranteed.

In this regard, attention should be drawn to the importance of national and regional services that co-ordinate source processing and document production (such as the Office National d'Information sur les Études et les Métiers in France and Human Resources Development Canada). These bodies are or will be taking on the role of Web portals for information on occupations and careers.

5. COMPREHENSIBILITY

5.1 Definition

Comprehension involves formulating a coherent mental representation of content, i.e. of a notion, a situation or a concept. The process of comprehension brings into play outside sources (discourse, text, images, situations), inside sources (an individual's existing acquaintances) and a goal, a project (the understanding of what to do, how to make a decision etc). Numerous studies have shown that the processing of an informational document on occupations or courses of study does not necessarily lead to proper comprehension: either the documents are flawed, or the content discussed cannot be integrated into the individual's prior system of knowledge or the user's goals are not compatible with those of the document's content.

5.2 Common practice

To our knowledge, there have been no studies attesting to major difficulties in comprehending the discourse of guidance counsellors. In the sample of 296 persons studied by Amiel et al. (2001) who were asked to whom they posed questions on occupations or courses of study, guidance counsellors and teachers were cited most often as persons providing a source of information (between once or twice and

more than five times). Parents emerged as the people consulted most frequently (more than five times). Counsellors were cited 220 times, teachers 200 times and parents 193 times, but parents were consulted "more than five times" by 62 persons, as against 16 for guidance counsellors and 25 for teachers. The fact that counsellors were consulted "once or twice" by 44.6% of respondents to the question would suggest that counsellors meet users' expectations by the first or second visit.

5.3 Documents

It is possible to improve the comprehension of documents by working to make the text more readable (e.g. Rufino & Tricot, 1995). To do so involves:

- Using a level of language that corresponds to the linguistic competence of the readers, and thus using simple words that users are familiar with;
- Defining difficult words;
- Using short sentences;
- Using familiar and simple syntax;
- Using a simple structure of discourse;
- Using a familiar structure of discourse, i.e. linking arguments together according to patterns familiar to users, such as certain narrative and descriptive patterns;
- Using clear and identical structures for each component of any given system of documents.

It is also possible to enhance comprehensibility by using modern techniques for document presentation – multimodality in particular (e.g. Mayer, 2001; Sweller, 1999):

- Propose, within textual documents, graphical representations or video shots of situations described;
- Use text-image integration to simplify management of text-image co-reference processing;
- Permit redundancy if the recipient is unfamiliar with the content in question;
- Provide for feedback on knowledge acquisition;
- Allow for different kinds of objectives;
- Provide an information selection or ranking mechanism triggered by responses to an initial questionnaire;
- Enable information to be selected and/or structured according to the objective pursued.

The most direct ways of conveying the reality of an occupation (such as videos or workplace visits) are beneficial and effective for comprehension. They are preferred by users, and especially by younger users. The CCC (1999) noted, however, that "Several remarks were made by practitioners about videos being too static, too simplistic, too passive, outdating too quickly and tending to appeal to narrow

target groups." Nonetheless: "Most of the practitioners consider videos as having the potential to be excellent supplementary resources, especially when combined with print materials. Used most often in workshops or group settings, remarks were made that 'clients do not pick up videos and sit down to watch them by themselves'. Practitioners who work with new Canadians report that their clients appreciate videos. Video can be an effective way to get information on 'how to do things' across to people who are new to the language as well as to the work and the learning process."

Videos and workplace visits are not panaceas. For example, the youngest students seem to have great difficulty grasping the reality of an occupation, even if it is described very directly. It would seem important to question youngsters before showing them videos or taking them on workplace visits. Then, after the viewing or the visit, it is necessary for them to use what they have understood—to organise it, arrange it, etc.

The cases of other technologies, such as the telephone, are dealt with in the Watts (2001) report.

In conclusion, let us add that even the best aids to comprehension do not skirt the potential problem posed by the user's prior knowledge. If, for example, a 15-year-old student thinks that a low salary is €120 per month, and another student thinks that €2,000 per month is low, both will have difficulty understanding a text referring to the notion of low wages. In other words, in order effectively to write a text that not only conveys a coherent vision of an occupation to the user, but also a true vision, it is necessary to know the level of the users' (or of categories of users') knowledge about the occupation: what they know, what they do not know, what they think they know, and their misconceptions (Rufino & Tricot, 1994).

In sum, complex documents (incorporating video, text, sounds and images) can lead to a better level of comprehension if they are designed properly, which is not always the case in the realm of occupational information (see, for example, the survey by CCC, 1998). Their production costs are very high, however. Information obtained through experience (workplace visits, internships) is also very effective but cumbersome to arrange. Those two methods, while offering undeniable advantages, are not panaceas: helping people to understand also entails correcting the misconceptions people have about a given occupation, career or situation.

6. RELEVANCE

If relevance means conveying content that corresponds to the recipient's needs, it can be said that the problems of relevance in the realm of guidance counselling are twofold. First, it is not easy to ascertain what recipients' needs are, especially when documents are being designed, as we saw in Chapter 3. Second, as shown by the Canada Career Consortium (CCC, 1998), which catalogued the difficulties encountered by counsellors (Table 6); accessing content that is likely to be relevant is inherently difficult for counsellors.

Table 6. Problems with current information on careers, according to CCC (1998)

Problem	Freq.	Sample comments
Accessing information	45	"Information is scattered and uncoordinated". "We find most information by accident" (…)
Currency of information and keeping it up-to-date	21	"Outdated trend information". "labour market information is so quickly outdated" (…)
Lack of resources relevant to my clients	15	Content issues: not enough "how-to" resources, need more regional or local information. Target audience issues: few resources for non-urban people, Aboriginal people, newcomers, low-literacy clients
No time to hunt for information or to review it	10	"I don't have time to locate, review, examine, or store materials for my clients" (…)
Motivating clients to use career information	8	"It's overwhelming and confusing for them". "It's hard to help clients make meaning out of it."
Cost factors and limited budgets	7	"Too much information changing so often and too little money" (…)
Concerns about the quality of resources	7	"Too much of the information is the same"... "Information is too diverse, too confusing, too conflicting" (…)
Inappropriate content in many resources	6	"We need more relevant content for students, Aboriginal youth, and adults with lower literacy levels" (…)
Using career information effectively	6	"I have had no training in how to use information". "Lacking knowledge and time to review and use resources well"

6.1 Definition

Mizzaro (1998) reviewed the literature and catalogued nearly 160 articles proposing definitions of the notion of relevance. Mizzaro himself sees relevance as a relationship between two groups: in one group is a document, descriptors of the document, and the information contained therein (which is received by the user); in the other group is the users' problem, their information need (their representation of the problem in their own mind), their request in natural language, and their request as a formalised query. Each of these entities can be broken down into three components: the topic of interest to the user; the task that the user is going to perform using the information found; and the context in which he or she is going to perform it (work, learning, research, etc.). Relevance is the match between each of the entities of both groups (the information system on the one hand, the user on the other), for the three components (topic, task and context).

We shall therefore adopt this conception of relevance and extend it, in connection with information systems, to the notion of usefulness: the usefulness of an information system is the match between the system' purpose and the user's goal, in respect of a given topic, task and context.

How can relevance in the realm of information about occupations and careers be improved?

6.2 Common practice

Improving the relevance of occupational information entails considering the user's needs (if not helping the user to express or to take his or her needs into account) and then tailoring the discourse to those needs. This constitutes the core of a guidance counsellor's job.

Julien (1999) commented that the process of making career decisions can strike some users as a task too complex to be undertaken.

In France, Aude-Drouin et al. (2001) conducted a series of interviews about work with students, teachers, information officers and counsellors. It would seem that a number of education professionals are capable of producing two different types of discourse, and keeping them more or less completely separate:

- An accepted discourse about work and the economic environment (things today are difficult, things are changing fast, careers and choices are rational processes, not working is virtually synonymous with social exclusion, etc.);

- A personal discourse, based on their own experience or that of their family or friends (in which there is a place for fate, luck, not working, etc.).

For their part, counsellors are fully capable of speaking about work in highly erudite terms.

Sometimes, what counsellors and teachers have to say reflects a certain form of "guidance segregation" already highlighted by Duru-Bellat (1995):

- Some students, and especially those that are fairly weak academically and from lower social groups, are obliged to make rational choices for fairly short courses of study to prepare them for a "real job" that involves manual labour, which they are told is in no way degrading.

- Other students—those tending to do well at school and from middle- or upper-income households—can afford to make less rational choices in favour of courses that do not necessarily lead directly to a "real job".

As a result, it would seem that a certain realisation of the role played by chance and the benefits of change, and even insecurity, is possible "in a personal capacity"—but impossible in the discourse to be presented in front of students. Similarly, while people readily cite the importance of "making money" or "earning a living" with regard to themselves or their friends or family, these aspects get little attention in educational approaches to student guidance, and in written materials they can be totally disregarded.

Counsellors and teachers should not be misled on two points:

- Discourse about past experience (how someone broke into the job market, how someone decided what field to go into, or how someone's career turned out) generally involves some reconstruction and rationalisation.

- Discourse about the future (how a career takes shape, how choices are made, how someone breaks into the job market) is projective and must allow for the part played by chance and diversity.

Changing labour market conditions and types of employment have major repercussions on individuals, their identities and how they fit into communities. Among the factors with the most far-reaching consequences are the discontinuity of careers, the break-up of unities of time, place and action, the need for self-mobilisation, and the pressure of constant assessment of results. Students are well aware of all this, because the adults around them allude to it either explicitly or implicitly.

It would seem that in the current context it must be realised that guidance is less a matter of choosing an occupation than positioning oneself to grasp opportunities. This capacity to find one's place amidst a broad spectrum of possibilities entails a gradual process of eliminating what one does not want for one's life and ascertaining what one is not. But once the unacceptable has been eliminated, the latitude remains very great. One's social and personal identity is what provides meaning, enabling people to take

decisions and make choices that are not in contradiction with who they are and what they want to be as persons.

Clearly, it is not easy to establish linkages between information about education and training, the nature of jobs and the labour market. We believe that guidance counsellors cannot offer a "mechanistic" approach to these linkages (studying "x" will lead to job "y", with "z" chance of getting hired). They must be aware of their own personal perceptions, which are apt to colour what they say about occupations, courses of studies and the labour market. They could probably also promote an open approach to personal planning.

6.3 Documents

Content

Aude-Drouin et al. (2001) have analysed the content of information documents on occupations in order to determine which themes are actually addressed by designers of documents (manuals, brochures, magazines, newspapers, CD-ROMs). The most frequently used descriptors are:

- The description of the occupation brings out positive aspects with which individuals can identify: models, values and recognition.
- The socialisation described is aimed at integrating individuals: their ability to understand and to internalise what the organisation expects of them.
- The description of the occupation presents descriptors such as working conditions.
- The occupation is presented as having many different and unique facets.
- All forms of mobility (geographical, career) are mentioned.
- The skills described as necessary for holding a job are linked to personal qualities and certification.

It can also be noted that:

- A career path is never described as being the result of pure chance.
- The occupation is very rarely presented as a "homogeneous whole".
- The occupation is virtually never described as a simple, superficial experience.

Access

A document's relevance depends firstly on the quantity of documents from which it is drawn. This is the standard problem of the relationship between recall rates and precision rates (Buckland & Gey, 1994). The greater the number of documents available, the greater the likelihood that users will find a relevant document (high recall rate), but also irrelevant documents (low precision rate). Beyond a certain point, it even becomes likely that users will fail to identify certain relevant documents because of this very

profusion. Consequently, although the expanding number of sources, in particular via the Internet, increases the possibility of finding relevant documents, it also increases the likelihood of not finding them.

A number of approaches are being investigated in order to try to solve this problem of relevance.

In the first approach, the document system should make it possible to identify the category or categories to which users belong, such as their age, gender, focus of interest, etc. This identification makes it possible to pre-select a subset of documents that are generally relevant for persons in this sub-category.

In the second approach, it is the information that needs to be categorised. For example, Rufino and Tricot (1995) have established a method for presenting informational documents on occupations that describes each occupation in five information categories, corresponding to the questions most frequently asked by users: the nature of the work, working conditions, the qualities required, studies required, and job and career access.

In the third approach, it is the interaction between users and the information system that will define how the information system and the interaction will change (and adapt). There is reason to believe that interfaces which adapt automatically to the types of uses and requests made by the user (adaptive interfaces) would be very useful in this regard. Even more, with intelligent agents, users could simply describe what they are looking for and the system would do the search for them. Consequently, interactive and adaptive electronic documents are an encouraging development for ensuring content that is more specific and better adapted to users.

7 THE GUARANTEE OF RELEVANCE

For this chapter, we shall refer to the EC-OECD report drafted by Plant (2001), Chapter 3 of which is devoted to "Occupational and Educational Information Quality". It is clear that the best guarantee of relevance is the quality of information. It is quality and relevance that enable users to have confidence in guidance counsellors and informational documents on occupations.

The fact is that problems may arise when messages are irrelevant or false, for the recipients may then lose their confidence in the source. In her study, Julien (1999) cites the following comments of a young person: "Do guidance counsellors actually know what they are talking about? I don't know if they are reliable because of personal experience in the past." Consequently, counsellors and documents on occupations must not only be relevant, but must also guarantee that they are relevant.

7.1 Definition

The guarantee of relevance is the counterpart to recipients' belief that the sources are relevant, i.e. that they are issuing a message that will meet recipients' needs. The fact that the recipient recognises that the sources are relevant works both in the short term (the source responds to immediate needs) and the long term (the source responds to less urgent needs and speaks the truth). In the field of occupational information, this message must be true.

The guarantee of relevance is put into practice at two levels:

- At the informative level: sources are recognised as being relevant because they actually are relevant and are providing accurate information.

- At the communicative level: sources are recognised as being relevant because they describe the rules, methods and standards that they have followed when drawing up the message (this is the role of quality standards).

7.2 General practice

According to Watzlawick et al. (1966), "the nature of a relationship depends on how both parties punctuate the communication sequence". Thus, we can hypothesise that the recipient recognises that the source is trying to be relevant on the basis of the latter's relevance in the preceding communication sequence. This suggests that guaranteeing the relevance of guidance counsellors and services requires an investment over the long term. Sperber and Wilson (1995) refer to Grice's model (1975) as the one that an ideal source might adopt. We think that this model is well suited to the main lines of a long-term investment by guidance counsellors, document designers and guidance services. For Grice (1975), communication is defined by two principles: a principle of co-operation between two speakers, and a series of maxims or rules of good conduct. These are:

Maxims of quantity

1. Your contribution should be as informative as possible.

2. Your contribution should not be any more informative than necessary.

Maxims of quality

1. Do not say anything that you believe to be false.

2. Do not say anything that you do not have sufficient reason to consider to be true.

Maxim of relationship

Be relevant.

Maxims of manner

1. Avoid obscurity.

2. Avoid ambiguity.

3. Be brief.

4. Be orderly.

When there is an apparent lack of information or uncertainty, the recipient proceeds by inference, i.e. making further assumptions and drawing additional conclusions. To do so, the recipient must believe that the source is trying to be relevant and therefore wanted the recipient to operate in this way.

7.3 Documents

The greater the number of documents and the more open the document systems, the lower the guarantee of relevance. According to the CCC Report (1998), guidance counsellors are convinced that this is the case:

> Typical comments were: *"The Internet is great for research but I don't think my clients learn anything from using it."* Many practitioners voiced this idea. Concerns are that students and clients enjoy the search, the hunt for sites, but that they don't necessarily know how to incorporate the information they turn up.
>
> *"The Internet can be very confusing, and clients have trouble piecing the information together."* Concerns were raised that there is too much emphasis on getting information on the web, and not enough emphasis on how to use the information you find on the web.
>
> *"The Internet is probably the most used resource. The danger is when it is seen as the be-all and end-all."* This idea came up again and again. Even the hardiest proponents of the Internet are cautious about concentrating the majority of their (or the governments') resources on it.
>
> People who use the Internet daily offered some additional concerns. Some of these were:
>
> *"The search engines and classification of data are not good enough."*
>
> *"There are no standards for presentation."*
>
> *"There is little local information."*
>
> *"It's frustrating that many Internet sites are not maintained and kept up-to-date."*

8 THE USABILITY OF DOCUMENTS AND INFORMATION SYSTEMS

All of the preceding chapters argue in favour of a pedagogical approach to the design of information documents on occupations. If the aim is to enable users to gain new knowledge that they can use again in future career decision-making (Peterson et al., 1996), then we are talking about a process that is rightly described as pedagogical. This chapter will seek to show how pedagogical electronic documents can be designed. It is based on the work of Nielsen (1993, 2000) and Tricot and Rufino (1999).

8.1 Definition

According to Nielsen (1993), usability is a function of 5 criteria:

- Efficiency: the ability to achieve one's goal without wasting too much time.
- Learnability: the ease and rapidity with which users learn to use the information system.

- Memorability: users' ability to memorise how the system works and more generally what they have done.

- Reliability: the prevention and management of errors by the system.

- User satisfaction.

Currently, Nielsen (see http://www.useit.com) and usability specialists tend to include accessibility as an important criterion, stressing that this accessibility may be specific to children, the elderly, persons with a particular disability, etc.

8.2 How to improve the usability of documents on occupations

Content

Content must be organised. It is generally recommended that it be given a simple, rational, hierarchical tree structure. The organisation of content requires a precise definition of the granularity of processing of content, i.e. of the level of detail chosen for processing it.

Pedagogical scenario

The document must contain the following: a presentation of objectives, one or more ways of progressing through the content, and a system for regulating user activity, particularly taking into account their mistakes, difficulties, interests, etc. Lastly, the document may contain a knowledge evaluation system, which ideally can be used on entry and on exit. A hybrid pedagogical scenario may be used, with a part that is internal to the document and another that is external (i.e. handled by the guidance counsellor).

Navigation scenario

This refers to everything that the user will be allowed to do. This scenario must be consistent and transparent. Transparency means that users must not wonder why a specific item is in a certain place, or how to get to that place, or what there may be over there at the back. They should be able to see clearly what they need to do. Ideally, the navigation scenario should be recognisable and implicit, i.e. the users need not be explicitly aware of its existence. This is why a navigation scenario is sometimes based on a metaphor: an organised set of actions that is possible via another organised set of possible actions (e.g. a spatial metaphor for representing how one can move through the document). Lastly, a navigation scenario must be simple: not very deep (it should rarely be possible to open more than four screens successively) and not very wide (it should rarely provide more than four or five different choices).

Interface

The interface presents a series of affordances. An affordance is the capacity of an object, button or shape to perform the task intended. For example, an arrow pointing to the right suggests "go to the next page" or "turn the page". The interface must be relevant. The user assumes that the designer sought to be relevant when designing this system or interface. Consequently, an affordance represents a kind of implicit contract between the designer and user, both of whom are seeking to make the interaction as successful as

possible. If the designer breaks the contract, the interaction will no longer work. It is necessary to find the affordances with which the target audience is most familiar.

This interface must be consistent. Every action that can be taken within the document must have one and only one outcome, be reversible in a single way and be represented on the interface in one way only.

This interface must be understandable. The user must be able to recognise the possible actions and the fact that they are consistent. Recognition is the basic process by which the user remembers and constructs meaning. Each time users recognise something, this means that their memory has functioned and they have assigned meaning. Each time they do not recognise something, it is likely that difficulties will ensue.

The interface must promote the cognitive processes involved in the activity performed, i.e. understanding and decision-making.

The interface must be as simple as possible, with:

- Few colours (3 at most).
- Few windows (2 at most).
- Few words (200 per screen at most).
- Few images (1 or 2 per screen).
- Few font styles (ideally, no more than 1).
- A large font size (14 is best).
- Formats adapted to the knowledge being transmitted.

9 THE ACCEPTABILITY OF DOCUMENTS AND INFORMATION SYSTEMS

The acceptability of a system refers not only to how well it meets the needs of the institution promoting it and of users, but also to how well adapted it is to individuals' characteristics, how compatible it is with the organisation of facilities and time, whether the necessary equipment is available, and whether it is compatible with the culture, values and customs of users.

The acceptability of information documents is difficult to assess. It would seem that individuals have a preference for electronic documents, at least from what they say. This preference is no doubt much influenced by current fashion, as is borne out by the study carried out by the CCC (Table 7).

Table 7. Preferred formats for the future according to CCC (1998)

End-Users' Views : (280 surveys)		Practitioners' Views : (143 surveys)
Internet (177)	#1	Internet (118)
Computer software (144)	#2	CD-ROM (112)
Newspapers (137)	#3	Computer software (107)
CD-ROMs (121)	#4	Books (95)
Booklets (99)	#5	Video (94)
Books (94)	#6	Booklets (92)
Television (88)	#7	Newspapers (90)
Paper/pencil tests (82)	#8	Paper/pencil tests (81)
Video (78)	#9	Television (79)
Radio (75)	#10	Posters (73)
Posters (67)	#11	Audiotapes (63)
Audiotapes (58)	#12	Radio (59)

The study by Amiel et al. (2000) conducted in France, i.e. in a country in which information and guidance centres have a relatively low availability of computer equipment (in comparison with the availability of paper documents), shows that paper documents are generally more often consulted than computerised documents (Internet and CD-ROMs). Out of this sample of 296 young people between the ages of 12 and 25, 70.6 % said that they had consulted paper documents, compared with 31.1 % who had consulted the Internet and 13.2 % who had used CD-ROMs. What is more, it is apparent that as the relative frequency of consultation of documents increases, "traditional" documents are consulted more often. Some 33.4 % of respondents had consulted paper documents over five times, as compared with 8.4 % for documentation on the Internet and 2.7 % for documentation on CD-ROMs.

This study suggests that, over and above the impact of fashion, users are perhaps more satisfied with paper documents, most of which in France are produced by the National Office for Information on Studies and Professions (ONISEP). There is also reason to believe that electronic documents will ultimately be as satisfactory for users as paper documents once they are designed with the same degree of know-how, professionalism and rigour.

10 CONCLUSION

Occupational information entails two different types of practice: that of guidance counsellors and that of document designers. These types of practice are becoming increasingly complex as they seek to describe an economic and social reality that is itself increasingly complex.

Improving the practice of guidance counsellors requires improving their training, the quality of their work and their recognition. These issues are the subject of a report commissioned by the EC and the OECD (McCarthy, 2001). In some countries such as France, information may seem to be secondary to these guidance counsellors, who are psychologists by training and give greater importance to psychological interviews.

Improving the practice of document designers above all means co-ordinating their activities at the regional and national level so that they can make the enormous task of monitoring, collection, verification, evaluation and exploitation of sources a collective effort.

Improving the practices of document designers also involves convincing them to view this practice as a pedagogical task. As Peterson et al. (1996) indicate, documents should involve users in a genuine learning process, in which they acquire knowledge, skills and attitudes. Designing a learning document requires defining and organising content, a navigation scenario, a pedagogical scenario and an interface (Tricot & Rufino, 1999). This design work must primarily be based on knowledge of the needs, questions and limitations of users.

Lastly, we wish to refer readers to some other recommendations on how to improve occupational information that we think are extremely relevant and complementary to this report.

The recommendations of the Canada Career Consortium (1988):

http://www.careerccc.org/needsreport/index_f.cfm (In French)

http://www.careerccc.org/needsreport/index_e.cfm (In English)

The recommendations of the International Association for Educational and Vocational Guidance (1997): http://workinfonet.bc.ca/lmisi/jointcom/AIOSP/AIOSPDoc.htm

The recommendations of the U.S. National Career Development Association: http://www.ncda.org/about/polcoil.html

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