

GUIDANCE IN THE SCHOOLS: A NEW DEVICE FOR TEACHERS AND PSYCHOLOGISTS

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ABSTRACT

The paper gives a preliminary account about a set of tools meant for guidance interventions in the schools (level: 14 years old). The main features are a questionnaire to be used individually or collectively; a software which converts into an alpha-numeric text file the answers that a scanner captures as images; and a software which imports the questionnaire answers, does all the routine scoring and psychometric work required and produces a report for each child and a report for the teacher or the psychologist in charge of a group of children giving a sketch of what is more urgent to be done with different subgroups of children; a workbook to be used individually or for group training practice. Separate reports for the children and the operators help to give separate and non-competitive roles to psychologists and teachers. The paper is mainly concerned with the "diagnostic" components of the interventions, giving details about the questionnaire ("Focus 11+") and the companion software. Results obtained in two schools encourage to make a larger use of the instruments, which already seem to have reasonable reliability standards.

Guidance in the schools is a traditional field where psychologists and teachers co-operate, sometimes not peacefully enough.

We believe that only a good organisation, including a precise separation of roles, can guarantee effective co-operation.

We also believe that both psychologists and teachers should spend most of their time interacting professionally with people, and be relieved from all the menial jobs of recording, scoring, and so on.

Starting from these practical premises, we thought of a set of tools useful for a global guidance action in the schools. In this paper we describe the main part of the system: a questionnaire ("Focus 11+") and a companion software, to be used with children from 11 to 14 years old. We are experimenting a similar set for 16 years old ("Focus 16+") and for university undergraduates ("Focus 20+"). The software provides both an automated scoring and an automated interpretation, which is still rather an uncommon issue in the Italian market, but is becoming "the rule rather than the exception" in the Anglo-american settings (Lanyon, Goodstein, 1997, p. 318).

1. A psychological and educational model of guidance

Guidance can be seen in a number of different ways. The model we are following (Boncori, Boncori, 2002) states guidance as a help given to a person so that he/she increases his/her freedom and problem solving ability as to career choices. In this context, the general problem of career management is seen as a particular case of formation or changing of attitudes, going ahead for a lifelong and implying beliefs, emotions, and action tendencies (Krech, Crutchfield, Ballachey, 1962; Ajzen, Fishbein, 2000). The process obviously involves a person's cognitive structures, personality traits and dynamics, as well as his/her environment – mainly family, friends, school, and it could be easily reconsidered in terms of social representations (Palmonari, Cavazza, Rubini, 2002, pp. 73-106).

The actor in this model is the person – however young – who is planning his/her career. Teachers, psychologists, and any professionals involved in the process are “helps”, supporting but hopefully not influencing the actor.

In Italy, children from 11 to 14 years old face an important career choice: they have to choose which kind of “school” or “occupational training” they want to attend up to 18 years old. The help they may rely upon, outside their family, is:

- a) the school, where all the teachers are kept to give some “educational guidance” and a particular teacher is officially in charge for initiatives related to educational guidance;
- b) career counselling centres supported by the regional local authority, mainly aimed to “vocational guidance” and where it is likely to meet a psychologist;
- c) mass-media information and Internet information.

Teachers and psychologists usually interact in a “crisis event”: a school appoints a psychologist to help the teachers, most likely to test the children's interests and aptitudes and produce a report, better if only written.

This interaction is largely unsatisfactory for everyone involved in it, but it does not cost much, in money and in time, and this is why it remains an “evergreen”.

We may think of a different kind of interaction, in view of the model we briefly described. As we are aware of time and money pressures, we propose a minimum and a maximum of intervention for each point.

1. Information about possible careers: it may be given by teachers, supported by books especially meant for them and their pupils, bought for the school library. A resource book of this kind should include a guide to consult the Internet. In this early stage of intervention, the information can be acquired in an impersonal way.

2. “Formative intervention” by the teachers, supported by workbooks and including exercises about improving self-knowledge and problem solving.

3. Information acquired via an interpersonal approach: e.g. interviewing professionals the school appoints, inviting parents or former pupils who went through different careers and who accept to give a brief presentation of their job and academic/working formation and – especially – are willing to be interviewed by the pupils. The best procedure is for the students to practise in advance how to interview, and have their questions ready.

4. Information about oneself. Here we may have different solutions, at different costs. The one we present here is among the most economical ones: a questionnaire - taking more or less one hour time - to be answered, in a collective way, inside the classroom.

5. Individual and/or group interaction between a guidance operator and the children, until a satisfactory decision has been reached.

What we are referring to as a “device” is a set of tools including: (a) a questionnaire to be used individually or collectively; (b) an answering sheet (printed in black and white), apt to be read by an optical scanner; (c) an handbook for teachers or psychologists who want to use the questionnaire; (d) a software which converts into an alpha-numeric text file the answers that the scanner captures as

images; (e) a software which imports the questionnaire answers (as an alpha-numeric text file) from a computer, does all the routine scoring and psychometric work required and produces several outputs (see ahead): namely, a report for each child and a report for the teacher or the psychologist in charge of a group of children giving a sketch of what is more urgent to be done with different subgroups of children; (f) a workbook to be used individually or for group training practice. When all the elements are used, the time required for the whole “diagnostic” process is one hour in the schools, for the children to answer the questionnaire, a few minutes for the acquisition process via scanner and, for a group of 20 pupils, half an hour of computer and printer work. The “interventions” supported by the workbook may take on average an hour a week for two or three months.

In this paper we only consider the “diagnostic” components.

2. Focus 11+: A questionnaire to help children think about what they really want to do and to become

The questionnaire (“Focus 11+”) collects information about many aspects of the career attitude, according to the model of Boncori and Boncori (see Tab. 1). It may be implemented with psychological tests mapping the personality and cognitive structure and development, but it may be used even by itself. It is meant for collective or individual administration, and takes approximately one hour to be answered.

Table 1. Focus 11+: Information provided

Scale	Content
A	Personal Activation
B	Cultural Background
I.1c	Interests: 1. Culture
I.3a	Interests: 3. Arts
I.4p	Interests: 4. Pro-social
I.5i	Interests: 5. Business and Organizations
I.6s	Interests: 6. Sports
I.7t	Interests: 7. Technology and Applied Sciences
I.8g	Interests: 8. Routine jobs
L1	Professional Level 1. Jobs Requiring a University Degree
L2	Professional Level 2. Jobs Not Requiring a University Degree
L3	Professional Level 3. Self-Employment (University Degrees are irrelevant)
I.2e	Interests: 2. Money
D	Difficulties
U	Mass-media Usage
F	Family: Perceived as Important (F+) or Irrelevant (F-)
E	Adults outside the Family (“Estranei adulti”): Perceived as Important (E+) or Irrelevant (E-)
MF	Perceived Aims (“Mire”) for the Family: MF+ = the Family want the student to achieve a high-level degree; MF- = the Family want the student to get a job as soon as possible
C	Peers (“Coetanei”) perceived as important (C+) or irrelevant (C-)
MC	Perceived Aims (“Mire”) for the Peers: MC+ = the Peers expect the student to achieve a high-level degree; MC- = the Peers expect the student to get a job as soon as possible
Q	Quantity of Information acquired
O	Opposition to School
P	Environment Pressures
Z	Self-evaluation of School Achievement

Like most questionnaires used for guidance purposes, Focus 11+ maps educational and occupational interests. These are grouped into seven classes, thought for an easy correspondence to the Italian school and training system. Following assumptions largely shared (Hansen, 1984), interests are evaluated via direct questions and also via indirect ones referred to everyday activities.

Furthermore, Focus 11+ asks questions about many areas that according to the model are related to a career decision: cultural background, parents' and friends' aspirations, life problems, quality and quantity of information, personal activation and self-perceived school achievement.

3. Focus 11+: The Companion Software

The questionnaire's answer sheet is printed in black and white, so that it can be easily and conveniently photocopied. The items are multiple choice, and each answer is marked by a letter from A to E.

The answers can be read using a pre-processing software program (Mastacchi, Garsia, 2003) the main output of which is a text file containing data such as School name, Class and Section, Date, Number of each student in the School Register, Name of students, Number of the item and answer (letter) marked by the student.

The program imports a text file with the students' names and the answers from the answer sheet.

Once the scanner is properly regulated and the students are properly instructed, the reading precision is 100% in our experience. The same software can be used to import data for a variety of tests, and it is not specifically meant for Focus 11+.

The file produced by this software can be easily scored using well-known programs like Excel or Filemaker and produce raw scores and standard scores for all the scales described in Tab. 1. This procedure would be quicker and more precise than using a traditional scoring-key, but still it would require at least one hour of clerical work for each group of 20 students and some technical competencies. Then, at the end of the psychometric procedure, it would require for the psychologist or the guidance expert the exacting work of structuring all the data together in order to produce a sound report for each student.

A further processing software program "Focus11+Soft" (Boncori, Di Marco, 2003) can spare all that. In fact, the specific software "Focus11+Soft" imports the previous text file and produces both raw and standard scores (C scores), a report for each student and a report for the operators. The output can either be printed or exported as text files (for the numerical results) or saved in MS-WinWord format. This software program, after the usual routine controls, has been double-checked for each separate instruction in the program over two different samples of real data, by two different operators¹.

Both software programs are designed for PC running Windows 98/ME/NT/2000/XP.

4. Focus 11+: Results for the Students

Each child gets an individual report of two or three pages, written in a simplified language. The text is based on hundreds of program instructions, so that stereotypes are reduced to a minimum, and in fact the appearance is very similar to a hand-written text.

Each report is articulated in the following areas:

1. Your Interests
2. The Professional Level you Want to Reach
3. Focus the Situation
4. Focus the Decision

Table 2. Stages of a career decision process and typical interventions

<i>Stage</i>	<i>Behavioural indicators</i>	<i>Questionnaire indicators</i>	<i>Typical interventions</i>
To see that a problem exists (<i>problem finding</i>): process not starting yet	The S. does not say he/she prefers either a career either a professional status	Low scores in: Q (Quantity of collected information) U (Use of mass-media information) All the interest scales L1, L2, L3 (Levels of aspiration)	To stimulate the S. to see that a problem does exist, To provoke anxiety
To see that a problem exists (<i>problem finding</i>): process started	The S. information is wide and his/her interests are many and not consistent	High scores in: Q (Quantity of collected information) U (Use of mass-media information) All the interest scales L1, L2, L3 (Levels of aspiration). Interested to more than one kind of school and/or vocational training. Partial congruence between single interests explicitly stated and interests in that area as they result from indirect questions	If the information is still insufficient or lacking, to stimulate to increase it. If interests are too many or are inconsistent, to stimulate critical screening and control.
Legitimation process	The S. refers information to himself/herself: can I do it? Will I be happy if I do it? The S. asks others for advice. The S. estimates risks and probabilities of success, mentally anticipates the outcomes of single decisions.	Z (School achievement perceived) F (Family approval perceived) E (Important adults' approval perceived) C (Friends' approval perceived)	To reinforce the S.'s use of his/her internal "locus of control". To stress differences between objective and subjective, Training in rational problem solving and decision procedures
"Focusing"	The S. eliminates part of the choices as unsatisfactory. The S. gives a different relevance for his/her life to various opportunities.	Conflicts with the family: F (low scores) MF vs L1, L2, L3 (different aspirations from the family) O (Opposition to school) C (Low scores) MC vs L1, L2, L3 (different aspirations from the peer group) D (Difficulties - personal and environmental)	To make the S. say which career features are important for him/her, which could be the costs, the benefits, the risks of a particular choice...

The first area – “Your Interests” – relates about the combined results of the Interest scales (see tab. 1) and of the specific academic or job choices the students wrote he/she would prefer for the next years.

Further, the report evaluates the structure of each student’s interests according to the model, and according to the “stage” of the vocational process gives the student proper advice or asks questions to be answered during the individual interview.

Each specific academic or job choice is then evaluated for prospective “job satisfaction” under two aspects: if the career requires a mathematical competence and/or if it implies personal interaction. If only the questionnaire has been used, these aspects are just mentioned and presented to the student’s attention. If even personality tests have been used, the student’s personal traits relevant to these profiles are compared to personal profiles of older students or of professionals, and the report summarises whether the student’s personality profile is similar or not to people in that kind of career.

The second area – “The Professional Level you Want to Reach” – deals with a career problem which is rarely explored in an interest questionnaire, but nevertheless is essential in a vocational maturity process.

The report brings to the student’s attention what he/she wrote about his/her preferences under this respect and if there are any inconsistencies in what he/she said (e.g.: if some students write that they want to reach a high level job, but they don’t like to bear any responsibilities, they are warned this is scarcely possible). Further, the report compares the student’s aspirations with the aspirations that the student attributes to his/her family and to his/her friends.

The third area – “Focus the Situation” – starts listing the school subjects the student stated to be his/her favourite and the reported level of academic achievement. The subject preferences are compared with the student’s general interests and followed by suggestions (and in some cases by questions) according to the model. If aptitude test results and/or objective educational results are available, a more complex comparison is done and a longer report is issued.

The concluding paragraph – “Focus the Decision” – summarises all the information the questionnaire collected, under the categories the model provides (see Tab. 2).

Each student is classified as belonging to a specific “stage” (see Column 1) according to the standard scores he gets in a group of scales (see Column 3), and there are suggested questions appropriate to the stage he/she is gauged to belong, plus suggestions that embody the appropriate intervention for that stage (see Column 4). The intervention, started and suggested in the report, can be followed by further actions during the talk which comes together with the report handing to the student, or by actions planned for the whole classroom or for student groups (see next paragraph).

5. Focus 11+: Results for Teachers and Counsellors

A special output for teachers and psychologists is a peculiar feature of the “Focus” general scheme. Given a sequential analysis of the career decision process provided by the model, each child is located in the specific stage he/she is, as we said in the previous paragraph. We know from experience that the minimum intervention that can be done during the individual interview accompanying the report restitution to the student is not enough for most students.

In most guidance interventions, still, at this point the communication between the external psychologist or guidance expert on one side and the school operators (usually: teachers and school psychologist) on the other side is interrupted, and the rest of the guidance process goes beyond control.

Starting from the frequent request of the teachers to have a copy of each student’s report – request we don’t like to accept, as it undermines the confidential bond between counsellor and “client” – we thought of a report especially meant for the school operators: the “classroom report”.

The “classroom report” tells which children are in which stage of the process, and which is the line of action more advisable for each subgroup. The explicit referral to single interventions makes easier to organise a functional assignation of different but complementary jobs to teachers and to psychologists.

The “classroom report” includes the following sections:

1. Who is just beginning (stage: “Problem finding 1”);
2. Who needs to be stimulated to think critically (stage: “Problem finding 2”);
3. What the students says about their “important others” (stage: “Legitimation process”);
4. Who wants to be helped to get assurance and to test ideas (stage: “Legitimation process”);
5. Who is in the concluding stage and is estimating a cost/benefit balance (stage: “Focusing”).

Each section fits into one of the stages the model provides (two stages have been split, as they usually include many students). The stage, its properties and suggested typical interventions are briefly recalled at the beginning of each section.

Soon after the brief statement recalling the core significance of the stage/sub-stage, each “Questionnaire indicator” (see Tab. 2, col. 3) for the considered stage/sub-stage is examined and a list of the students showing that particular characteristic is issued.

E. g., for students classified in stage “Problem finding 2”, separate lists are given for students who said:

- ❑ they started to think about their choice since a fair time (scale A, average to high scores),
- ❑ have enough information about what can be done after they passed their exams (scale Q, average to high scores) and made good use of the mass-media information (scale U, high scores),
- ❑ their specific interests and/or general interests (scale I.1 to I.8, high scores) are scattered across different areas,
- ❑ they aim to job levels scarcely compatible among themselves (comparison among scores in scales L1, L2, L3),
- ❑ show specific interests in different areas from their general interests (comparison between scale I.1 to I.8 and specific interests),
- ❑ show interest for good earnings, not corresponding to job level and quality of interests.

The general scheme of the correspondence between stages – behavioural indicators – typical interventions can be seen in tab. 2.

The operator, seeing the number and the names in each stage or sub-stage can decide whether to take individual or group interventions and how to plan them across the school activities.

6. Focus 11+: Psychometric Properties

In a preliminary edition, Focus 11+ has been submitted to 129 children, attending “terza media” (8th year of schooling) in two different government schools. Psychometric elaborations performed on these data led us to modify or to delete some items and to produce a more satisfying edition. This second edition has been used in two schools, in different social areas of Rome (tab. 3). The schools have been selected because we could trust on co-operative school psychologists who may hopefully give us information about the operators’ attitude towards the Questionnaire and, especially, the reports.

Table 3. The Sample

Schools	A	B	Tot.
F	74	25	99
M	54	36	90
Tot.	128	61	189

The sample is large enough to check the psychometric basic properties of the scales and to collect a first feedback from the students and the operators.

Table 4. Items' and Scales' Properties

Scales	N° Items	*◀	S.D.	C.V.	Skewness	Kurtosis	Cronbach's Coefficient Alpha	Alpha taking the less homogeneous item away
A	8	8.15	2.84	34.85	-0.05	-0.64	0.49	0.54
B	8	7.77	2.5	32.18	-0.12	0.11	0.5	0.59
I.1c	19	18.7	6.11	32.67	-0.07	-0.26	0.79	0.8
I.3a	16	9.66	5.19	53.73	0.56	-0.45	0.78	0.79
I.4p	10	6.6	2.84	43.03	0.63	0.35	0.57	0.6
I.5i	12	9.41	3.9	41.45	0.65	0.62	0.65	0.67
I.6s	9	9.52	3.26	34.24	-0.31	-0.22	0.57	0.62
I.7t	16	11.36	5.56	48.94	0.5	-0.11	0.8	0.8
I.8g	8	6.97	2.42	34.72	0.3	-0.48	0.45	0.56
L1	8	10.03	3.59	35.79	-0.24	-1.02	0.74	0.79
L2	11	6.59	3.23	49.01	-0.17	-0.54	0.62	0.64
L3	6	4.35	2.09	48.05	0.33	-0.17	0.41	0.41
I.2e	9	12.1	2.49	20.58	-0.05	-0.29	0.41	0.47
D	15	5.58	3.53	63.26	0.9	1.01	0.62	0.64
U	4	0.89	0.97	108.99	0.96	0.82	0.08	0.12
F	11	16.29	2.76	16.94	-0.27	-0.14	0.53	0.6
E	5	4.67	1.95	41.76	0.2	-0.53	0.48	0.51
MF	9	15.26	2.31	15.14	-0.83	0.32	0.51	0.53
C	10	9.65	4.56	47.25	-0.08	-0.64	0.7	0.72
MC	7	8.5	1.97	23.18	0.15	0.17	0.32	0.4
Q	14	11.05	3.88	35.11	-0.14	0.02	0.4	0.45
O	6	4.02	1.8	44.78	0.08	-0.38	0.4	0.56
P	4	2.61	1.55	59.39	0.23	-0.42	0.04	0.26
Z	9	15.79	2.76	17.48	-1.55	1.73	0.83	0.83
Median				38.62	0.02	-0.20	0.52	0.60

On average, the scales show acceptable parameters for a questionnaire. Namely:

- Coefficients of Variation (C.V.) mostly are large enough to guarantee good levels of discrimination, and only in one case we have a value beyond 100 (scale U), showing that the scale does not have good metric properties;

- all the indexes for Asymmetry and Kurtosis are in the acceptable range for normal distribution; the prevailing negative sign on the Kurtosis index reinforces the hypothesis of a good level of discrimination in most scales;

- the Homogeneity Coefficients Alphas on average are around 0.52, which is a satisfactory value for a questionnaire; in some cases are near the value 0.8, regarded as a good result even for cognitive tests (see some scales evaluating Interests and scale Z, related to self-evaluation of academic achievement); only two scales have unsatisfactory indexes: scale U and scale P.

The “defective” scales share the problem of consisting of a very small number of items. Still, their content cannot be summed up to the content of other scales in the questionnaire and it appears too important for the intervention planning to be dropped out. It is worth checking if there are potential

content reasons for the unsatisfactory properties of the two scales, so that we can find a way to improve their metric properties.

Tab. 5 shows some item statistics for the Scale P, referring to «Environment Pressures» on the student. Data show that a majority of students in both schools resent some form of environment pressure, no difference between the school going beyond the chosen level for rejecting the null hypothesis ($p= 5\%$). It is reasonable to expect that the scale will show better metric properties in a larger sample, or in a sample characterised by a larger variance under this respect.

Table 5. Scale P («Environment Pressures») further Statistics

Item Content	Tot. School A	% Students	◀ School A	S.D. School A	Tot. School B	% Students	◀ School B	S.D. School B.	t	p
Pressures about the secondary school choice	67	52.34	0.52	0.70	32	52.46	0.54	0.75	-0.24	0.82
Family adults interfere with the student's school work	93	72.66	0.72	0.79	31	50.82	0.53	0.75	1.57	0.12
Family adults have a control over the student's daily school work	88	68.75	0.68	0.82	33	54.10	0.56	0.79	0.93	0.35
Family adults make the student consider how hard may be the secondary school work	106	82.81	0.82	0.74	44	72.13	0.75	0.80	0.59	0.57

Table 6. Scale U («Mass-media Usage») further Statistics

Item Content	Tot. School A	% Students	◀ School A	S.D. School A	Tot. School B	% Students	◀ School B	S.D. School B.	t	p
Information from Radio and TV	22	17.19	0.17	0.43	11	18.03	18.03	0.43	0.25	0.8012
Information from newspapers and magazines	17	13.28	0.13	0.38	7	11.48	11.48	0.38	-0.21	0.8381
Printed information from Student's Guidance Services	64	50.00	0.49	0.65	12	19.67	19.67	0.41	-3.73	0.0003
Information from meetings organised by Schools and Guidance Services	26	20.31	0.20	0.47	9	14.75	14.75	0.41	-0.71	0.4820

On the opposite, tab. 6 shows that a minority of the students in our sample made use of the mass-media information. The two schools only differ under one respects: half of the students in School A (lower social class) say that they consulted printed information from Student's Guidance Services, while a much smaller proportion in School B (20%) say the same. It looks obvious that the figures in tab. 6 depend on the way the guidance intervention has been conducted. We should check if the Scale U's metrical properties improve in samples where we know that a stimulation to collect information from mass-media has been properly given and the access to printed information from Student's Guidance Services has been made easy to all the students at the same extent.

7. Conclusions

A device has been presented which can be a useful tool for guidance support in Schools and Guidance services, when 14 years old have to decide whether to continue in the educational system or to move into occupational training.

The paper refers to a questionnaire and a companion software, which can save the operator all the psychometric work and a good portion of the organisational work.

The “pupil’s reports” embody questions helping the guidance interview.

The “operator’s reports”, suggesting the kind of intervention most appropriate for individual students and subgroups, make the organisation work easier and help to give separate and non-competitive roles to psychologists and teachers.

Results obtained in two schools encourage to make a larger use of the instruments, which already seem to have reasonable reliability standards.

Note

1. Dr. Laura Amabrini and dr. Irene Schettino-Nobile, psychologist, post-graduate students in the Rome State University School of Rome, “La Sapienza”, for Psychological Evaluation.

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