DESIGN BASED ON ICF
THE TRAINING COURSES FOR IN-SERVICE TEACHERS

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Abstract

The bio-psychosocial model is increasingly becoming the reference for the planning/organization of inclusive interventions, in Europe and in the Italian schools. The ICF has been one of the main topics (l. 107/2015) in the last three-year Italian teacher training plan but it requires to change the traditional way of consider and train on the design skill of teachers.

The work presents the procedures, the technique and the early results of three professional training courses evaluation (years 2017-2019). The courses involved 73 in-service teachers in a southern Italian area and aimed to enhance the design skills of Individualized Education Plan (IEP) based on ICF model. According to the Kirkpatrick Model, the evaluation has been conducted on the teachers' 'learnings' and 'transfer' detected through pre-post test and a document analysis of the PEI-ICF produced.

The study highlighted few linguistic and semantic difficulties (alphanumeric codes, meanings of capacity and performance in the reading of the Functional Profiles) and a better teachers' sensitivity to the environmental component of the functioning. It also outlines some procedures in order to evaluate the training 'results', in terms of learning stability.

This offers some useful arguments for the construction of a possible trans-national platform - sharing of practices, data-base – about the training of school teachers on ICF bio-psychosocial model.

Keywords: International classification of functioning disability and health, special education, school inclusion, in-service teachers' training.

1. Introduction – ICF: A gap between theory and teachers' training

The 'International Classification of Functioning, Disability and Health' (ICF), as a framework for describing the adult health and disability at both individual and population levels, is inspired by a bio-psychosocial model and is officially endorsed by WHO Member States 2001 (WHO, 2001), then adapted to the children and youth (WHO, 2007). The term 'functioning' refers to the *neutral* interaction between the individual (with a given health condition) and the contextual factors (environmental and personal); it exceeds the traditional concept of 'disability' as 'deficit' in a dynamic relation between four components - Body Functions and Structures, Activities, Participation, Environmental and Personal factors[1] (v. Figure 1), linked to meaningful relationship and quality of life – Hollenweger, 2014; UNESCO, 1994); it offers a 'new paradigm and taxonomy of human functioning and disability, which can be used to guide holistic and interdisciplinary approaches to assessment and intervention' (Simeonsson, 2009, p. 70).

Figure 1. Structure of ICF (WHO, 2013, p. 18).
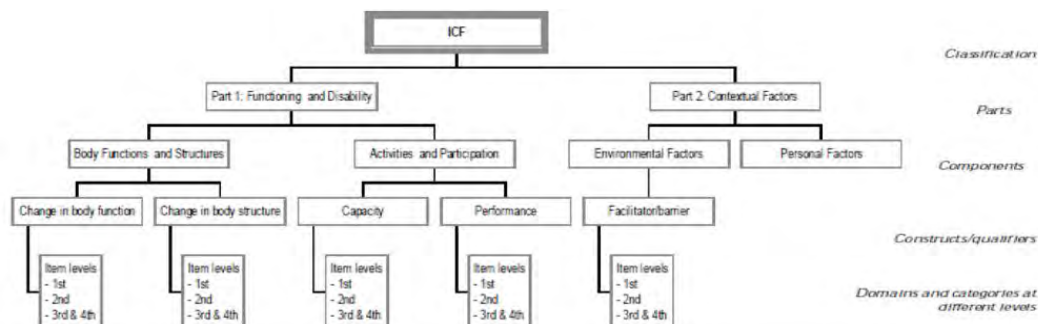
[1]*Participation* as involvement in a life situation and *environmental factors* as 'attitudes or physical-social environment in which people live and lead their existence'.

The ICF framework introduces more specific meanings: 4 levels for qualifying each component (no problem, mild, moderate, complete); alphanumeric codes for summarizing dimensions, chapters, qualifiers[2]; tow important distinctions - between *performance* (in the current environment) and *capacity* (in a standard environment) into 'Activity and Participation' and between *barriers* and *facilitators* into 'Environmental factors' component (Chiappetta Cajola et al., 2016).

WHO has elaborated numerous explanatory tools useful for creating a common knowledge base for professionals in the medical, psycho-social and educational area involved as trainers and users (Tokunaga, 2008) - checklist, short list, e-learning platform with tools and quizzes for verify. Despite, the ICF bio-psychosocial model is increasingly becoming the reference for the planning/organization of inclusive interventions, mostly in Europe (Sanches-Ferreira et al., 2018; Moretti et al., 2012), however 'there has been relatively little use of the ICF-CY in educational settings and for eligibility decisions about scarce education provision' (Norwich, 2016, p. 10).

Researches show the ICF usefulness for in-depth description of individual and student's (Klang et al. 2016) needs, the development of individualized programs (Sanches-Ferreira et al., 2015), the wide decision-making, a better comparison of specific cases but also the need to train teachers: a. to read the objectives form a more global perspective and on multiple domains (Sanches-Ferreira et al., 2013); b. to assume environment as an indispensable aspect of intervention (Castro et al., 2014). One of the early experiences of professional development in Italy, aimed at design the IEP though the services, parents and school collaboration (Francescutti et al., 2009), found a satisfactory adhesion to the new ICF-based protocols but also difficulties in distinguish roles and responsibilities as well as in assume 'environment' as a category for procedures and materials. Some recent researches on the elaboration of IEP (Meucci et al., 2014) reported teachers' difficulties in using constructs as 'bodily impairments', *capacity* and *participation* and in full understanding distinction between *barriers* and *facilitators*.

As noted by Norwich (2016, p. 10) 'these results suggest (...) that there is a gap between the ICF theory and IEP development practice that raises questions about how the ICF policy innovation has been implemented and adopted' (p. 8) and how teacher training should be enhanced.

2. Design and objectives – Training on ICF design skill of teachers

In Italy ICF was introduced as descriptive model and inclusive procedure in 2012 (Minister Decree December 27th 2012; European Commission, 2013) and officially adopted for the development of IEPs in 2016 (D.Lgs. n. 66). After that, Ministry of Education started a sweeping three-year in-service training (l. 107/2015 – 2016-2019) for teachers and support teachers, which integrates contextual and systemic skills - as well as that of the design - within the whole competence framework.

Design competence could be considered a 'hybrid' (Davey, 2013) - ability to effectively connect learning objectives and outcomes and to adapt these to specific needs and context resources - and a 'peculiar' feature (Laurillard, 2012)[3].

Three training courses were held for in-service teachers - in the south of Italy, years 2017-19 - named 'ICF 1', 'ICF2', 'ICF3') – aimed at enhance the design skill of IEP-IC and profiles on specific contents and skills (Table 1) and profiled on four phases of development (Table 2).

In conjunction with the training courses, a more extensive exploratory survey was carried out, based on a sequential mixed-method design (Creswell, Plano Clark, 2007; Cameron, 2009). This paper presents the outcome of the qualitative analysis regarding the knowledge on ICF.

Table 1. Main contents and learning objectives of IEP-ICF training courses.

Contents:	Learning objectives:
Legislation on inclusion, up to the news of Legislative Decree n. 66/2017	use technical language and procedures of ICF model
Language and articulation of the ICF bio-psychosocial model (WHO, 2007)	read a Functional Profile and a PEI-ICF as documents for school inclusion
Procedures to elaborate Functional Profile and IEP-ICF	develop a PEI-ICF in a group based on Functional Profiles and *case studies* provided

[2]'The letters b, s, d, and e represent the different components and are followed by a numeric code that starts with the chapter number (one digit), followed by the second level (two digits), as well as third and fourth levels (one extra digit each). For example, the following codes indicate a 'mild' problem in each case' - b2.1 Sensory functions and pain; b210.1 Seeing functions; b2102.1 Quality of vision; b21022.1 Contrast sensitivity – WHO, 2013, p. 17.

[3]The 'designer' socially builds a design model, negotiating his/her own individual knowledge (past experiences, even implicit mental habits - Polanyi, 1967) with shared culture (experiences of colleagues and families, school organization procedures etc.) and sharing a controlled vocabulary/glossary, a specific taxonomy/thesaurus (Rossi, Toppano, 2009).

Table 2. Phases of IEP-ICF training courses.

Learning objectives	Training tool	Focus
Phase I - *Information*		
Knowledge of the ICF model and language (alphanumeric codes, technical terms)	Official documents (WHO, 2007; 2018) Case-studies	4-domain model: body functions / structures; activity and participation; environmental factors; personal factors
Phase II - *Deconstruction*		
Analysis of traditional IEP models/document 'by axes' (ICD-10)	Traditional IEP document Functional diagnosis and dynamic profile	Difference between IEP by 'axes' and by 'function'
Phase III - *Reconstruction*		
In a group elaboration of IEP-ICF, based on *case studies* and document example	Document example of IEP-ICF, Functional Profile, Class programs	Integration between Functional profile, Individual project, IEP-ICF, Class programs
Phase IV - *Construction*		
Individual elaboration of IEP-ICF, based on personal experience and teaching practice		Document's adaptation to specific cases

3. Methods – *Learnings* of training though pre-post test

According to the Kirkpatrick Model (1996), the results of training intervention has been focused on the teachers': *learnings* - increase in knowledge, skills, attitudes in participants - detected through an *ad-hoc* pre-post test on content and knowledge; *transfer* - if participants utilize learnings at work, every-day live etc.[4] – document-comparative analysis (Bowen, 2009) of the PEI-ICF produced during training and adopted at school.

For learnings it has resorted to an 'ad hoc' test, articulated in n. 10 questions - four closed ended item; it is the adaptation of a validated tool (Francescutti et al., 2009) which detects knowledge on the general function of the ICF (Q.1, Q.2), on qualifiers in alphanumeric codes (Q.3, Q.9, Q.10), on performance and capacity in 'Activities and participation' (Q.5, Q.6, Q.8), on 'Environmental factors' (Q.4, Q.7). It was administered at the end of Information (*pre*) and Reconstruction (*post*) phases (see Table 2) and completed anonymously. The teachers - not statistically representative n. 73 - have varied characteristics, regarding seniority average (4,7) and teaching experience in supporting (n. 60 – 82,2%) - see Table 3.

Table 3. Characteristics of participants.

Course	ICF1	ICF2	ICF3	Tot.
n. participant	17	14	42	73
*School grade**	I/P	I/P	I/P/M	
Seniority average	3	3,5	7,5	4,7
n. support teachers	13	10	37	60
(%)	(76,50%)	(71,4%)	(88,1%)	(82,2%)

*I = Preschool; P = Primary School; M = Middle School

3.1. Analysis

Fellows an example of the analysis of the question (Q.5) on relation between *performance* / environmental factors (as *facilitator*) / *capacity* - a detailed presentation of the analysis elsewhere. Analyzing the types of answers, it is possible to attribute discover specific difficulties:

Q.5. Text – '*If a pupil has slight difficulties in reading and is supported by the teacher who merely provides simple help in keeping the attention alive, the qualifiers to be used should be*': ˷

Table 4. Analysis of the Q5 answers.

Answer	Text	Type of difficulty
1 – right	'1 in *performance* and 2 in *capacity*; support is to be scored as a mild facilitator (+1)'	*R = right answer*
2 – wrong	'1 in *capacity* and 2 in *performance*; support is to be scored as a mild facilitator (+1)'	*Meanings* – inversion of meaning between 'performance' and 'capacity' *WM = wrong answer for meanings*
3 - wrong	'0 in *capacity* and 1 in *performance*; support is to be scored as a mild facilitator (+1)'	*Levels* – failure in recognizing qualifier levels *WQ = wrong answer for qualifiers*
4 - wrong	'no support can be scored'	*Logic* – failure in recognizing link between 'performance' / facilitators / 'capacity' *WL = wrong answer for general logic*

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[4]Other levels are: 1. *Reaction* - how participants react to the training (e.g., satisfaction, feelings); 4. *Results* if there is a positive impact on the participants' organization (Kirkpatrick, 1996).

Figure 2. Distribution pre-post and movement of WL answers.
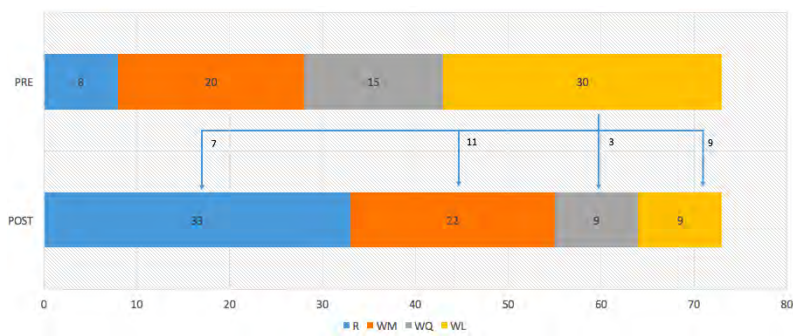
Based on the Q.5's analysis (Figure 2) - chosen only as an example - it is found that training had a general positive impact on *learning* (Kirkpatrick, 1996) - the pre-post comparison stated that:

a. increase in the right answers (R*post* - R*pre* = + 25)

b. incorrect answers persist on the meaning of the terms (WM*post* - WM*pre* = +2)

c. wrong answers on qualifiers decrease (WQ*post* - WQ*pre* = - 7)

d. the wrong answers about logic decreases (WL*post* - WL*pre* = - 21) - note also the movement of wrong answers on logic (WL*pre* = 30): redistributed (R*post* = 7; WM*post* = 11; WQ*post* = 3) while remaining (WL*post* = 9).

4. Discussion

From a descriptive point of view, the participants understand the difference *barrier - facilitator* starting from the case provided - R, WM, WR*pre* -, however at the operational level they manifest two types of difficulties: a. *logical-semantic*: the difference between *capacity* ('standard' environment) and *performance* ('current' environment) and the function performed by environmental factors within this relationship are difficult to gasp - n. WL*pre*; b. *graphic-linguistic*: in coding the environmental factors, participants easily distinguish facilitators (with graphic notation '+') not barriers (graphic notation '.'), confused with the *performance* and *capacity* qualifiers.

It is appropriate to highlight, also, an aspect of the course' structure. In phase I Information (Table 2), environmental factors were presented as 'attitudes or physical-social environment in which people live and lead their existence' (WHO, 2007) that influence the functioning and disabilities from the outside and in the form of facilitating (+) or impeding (-) impact on *performance* and *capacity*. Given that clarity, compared to Q.5, a high number of correct answers in the pre-test would have been expected, at the end of phase I; instead the increase (R = +25) occurred in the post-test, at the end of phase III. This suggests that not the knowledge learned in phase I was affected by the increase but the skills exercised in II and III phases (analysis of case studies, IEP-ICF documents example); it leads to reconsider 'learnings' as object of evaluation according to the Kirkpatrick model: in order to encourage understanding of IEP-ICF by teachers, it does not seem useful to separate declarative (phase I) and procedural (phase III) knowledge.

5. Conclusions

The complete analysis - answers to the pre-post test as well as Document analysis in the triangulation phase (Fig. 2) - will be provided elsewhere. However, it is already possible to deduce useful information for the training' organization on IEP-ICF design - some procedures in order to evaluate the training 'results', in terms of *learnings* stability (Kirkpatrick, 1996).

As already noted in previous research, teachers should be supported, in general regarding the ICF model, in integrating environmental factors within students' learning objectives (Castro et al., 2014) and, regarding the elaboration of IEP, in better distinguishing *capacity*/*participation* and *barriers*/*facilitators* (Raggi et al., 2013). Our analysis is highlighting a teachers' better sensitivity to the environmental component of the functioning, form the semantic point of view (alphanumeric codes, meanings of *capacity* and *performance* in the reading of the Functional Profiles) but also a logic difficulty regards the relationship *performance* / environmental factors (such as 'barriers' / 'facilitators') / *capacity*. The well known graphic model used in phase I (Tab. 2) - presenting 'Activity and Participation' and 'Environmental factors' (Fig. 1) not so related -, is functional for understanding meanings (declarative knowledge) but not relationships (procedural knowledge). The exemplary PEI-ICF used in phase III Reconstruction (Tab. 2) - which directly describe this relationship seem more useful for the *learnings* of teachers, in terms of knowledge and skills.

From the comparison with other research and teachers' training experiences, similar difficulties emerge although at different levels: this consideration would be enough to wish a possible trans-national platform, about teachers' training on ICF bio-psychosocial model, that shares practices, difficulties and hypotheses of solution and that contributes to the development of common knowledge

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