

A MODEL FOR TRAINING PARENTS AND TEACHERS OF CHILDREN WITH SPECIAL NEEDS

UN MODELLO PER FORMARE GENITORI E INSEGNANTI DI BAMBINI CON BISOGNI EDUCATIVI SPECIALI

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Abstract This paper presents an integrated training model designed to promote networked community-based interventions for children with Attention Deficit Hyperactivity Disorder (ADHD). The article begins with discussion of a multimodal approach to the care process and a description of some important theoretical assumptions. This is followed by a description of the training program, its structure, distinctive features and methodology. Finally, preliminary results are reported and discussed in three areas: the training model's effectiveness for promoting an integrated view of children's behaviors; improvements in parents' and teachers' management of challenging behaviors; and experience with the WHAAM application used.

KEY-WORDS Attention Deficit Hyperactivity Disorder (ADHD), Functional Behavioral Assessment, Parent and teacher training, WHAAM application

Sommario L'obiettivo di questo contributo è presentare un modello integrato di formazione finalizzato a promuovere la costruzione di reti di supporto, attraverso l'uso delle ICT, nella gestione di interventi con bambini ADHD. A partire da un'introduzione riguardo alla necessità di adottare un approccio multimodale nel processo di analisi e cura del soggetto con ADHD e dalla descrizione di alcune premesse teoriche, sarà presentata la struttura delle 6 sessioni che compongono il programma di training, le sue caratteristiche distintive e la metodologia adottata. Infine, saranno discussi alcuni risultati preliminari relativi alla somministrazione in uscita di un questionario finalizzato a valutare l'efficacia del modello formativo adottato.

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INTRODUZIONE

The European Interdisciplinary Network for ADHD Quality Assurance (Rothenberger, Danckaerts, Döpfner, Sergeant, Steinhausen, 2004) defines Attention Deficit Hyperactivity Disorder (ADHD) as a developmentally inappropriate level of attention and/or hyperactivity-impulsivity with onset before the age of seven years; its frequency varies from 3-5 % of school age children, and from 1-3 % of adults, affecting social, behavioral, educational and professional development. Recent studies state that it should not be classified/considered as a pediatric syndrome since its impact continues through adolescence and on into adulthood. This creates serious limitations in many different life contexts such as adult relationships, school performance and family and social relationships (Pelham, Foster, & Robb, 2007).

The disorder affects not only the child but also the family, school and community in which he/she lives. This is due to the difficulties in managing the typical behavioral traits such as exaggerated reactivity, impulsiveness, noncompliance with rules, poor emotional and attentive self-regulation. Evidently, in such stressful situations, parents and teachers need support to find resources and strategies that are able to improve learning and the socio-emotional wellbeing of the child. The direct involvement of the family and school forms the basis of a multimodal treatment programme that combines medication, psycho-education and certain kinds of psychotherapy such as life coaching and behavioural interventions (BI) (Polidori et al., 2010). In most cases evidence suggests that BI, accompanied by parent/teacher training programs, generally appears as first-line treatment for ADHD, especially in the case of pre-school and school age subjects (4-11 years), either alone or in combination with medication (Pelham & Fabiano, 2008). Given the importance of training the key stakeholders – specifically parents and teachers – to cope with the child's problematic behaviours, the efficacy of those training programs has been under examination (e.g. Kaiser & Hancock, 2003; Belvis, Pineda, Armengol & Moreno, 2013). Reflections on best training practices have focused on current challenges in assessment and intervention processes, namely the need for an integrated view of the child's needs and for creating social support networks (e.g. Polidori et al., 2010; Pelham & Fabiano, 2008).

In the light of these considerations, we present an integrated model for joint training of the most representative figures involved in the education of an ADHD child, namely parents, teachers, and health

professionals such as psychiatrists, psychologists, speech therapists and pediatricians. The intention to promote a collaborative approach between those stakeholders was mediated by the implementation of a specific training approach and the use of an innovative application designed to support joint analysis of the child's behaviour.

Some theoretical models in this field

During the lifespan of school classes, it is possible to observe many dysfunctional socio-relationship dynamics and learning difficulties that affect the well-being primarily of the child with ADHD and secondly of teachers and classmates. The same occurs at home, where behavioral and learning problems pose a high risk of parental stress and affect family activities and family cohesion. Consequently, carers must develop in-depth knowledge of ADHD, learn how to conduct open-ended observation for the identification of factors generating daily problematic behaviors, and introduce strategies to reduce the risk of increasing difficulties. With adequate support, parents or teachers can learn to react in a prompt but relaxed manner to reinforce positive behavior and gain understanding that punishment or negative consequences worsen the interaction with the child and lower self-esteem.

Common aspects of several parent training programs (Sanders, Markie-Dadds, Tully, & Bor, 2000; Sonuga-Barke, Thompson, Daley, & Laver-Bradbury, 2004; Barkley, 2006; Phelan, 2010) are teaching the practices of positive attending skills in human relationships, special time for positive parent-child interaction, and teaching effective commands (e.g. using clear directions, not questions; repeating requests; approaching the child, touching, using eye contact). At the same time, parents should learn to pay attention to non-disruptive child behaviors; to use a token economy, to become predictable in establishing routines and reinforcing their child's compliance; to link child privileges to work; to adopt time out strategies.

Similarly, at the beginning, teacher training consists of some psychoeducational modules on the origin and characteristics of the disorder with the aim of developing awareness: as ADHD is a neurodevelopmental disorder, the child acts out of his control. Often, his behavior is chaotic and disorganized because he is unable to predict his actions and their consequences; generally, he is not able to reflect autonomously upon the effects of his own behaviour. Therefore, the environment plays a key role: the less organized and structured it is, lacking an explanation of the rules and of the consequenc-

of different behaviours, the more it will contribute to an escalation of behavioural and learning difficulties. Through training programs, teachers learn to create a predictable environment that may help the child in his self-regulation process, and to adopt suitable classroom accommodations and strategies to reduce problematic behaviours and encourage alternative ones (Kotkin, 1995; Barkley, Shelton, & Crosswait, 2000; Miranda, Presentación, & Soriano, 2002; DuPaul et al., 2004).¹

In this scenario, parents and teachers obviously need to gain or enhance knowledge on behavioural and observational strategies in order to identify those situations that both trigger problematic behaviours and lead to their continuation in the future. Learning this method of analysis, namely Functional Behavioral Assessment (FBA; Conroy, Davis, Fox, & Brown, 2002; Camp, Iwata, Hammond, & Bloom, 2009; Hurwits & Minshawi, 2012), becomes essential to understand the purpose the behavior serves for an individual and to identify effective treatments that produce generalized results (Hanley, Iwata, & McCord, 2003). Although FBA is widely advocated as best practice in developing effective behavior intervention plans for students with challenging behaviors, there is a widespread lack of expertise among teachers and parents in using the outcomes of FBA to develop effective interventions. In this framework, this contribution presents an integrated model of parent and teacher training in how to use the outcomes of FBA to develop function-based intervention plans with the support of the WHAAM app.

The presented model was developed in the scope of an international project named WHAAM – Web Health Application for ADHD Monitoring – whose main outcome was the development of a web application that targets parents and teachers of children with ADHD, as well as health professionals, and promotes a network of people who can manage and monitor dysfunctional behaviors in the main life contexts like school and home (Merlo, Chifari, Di Giuseppe, & Spachos, 2016; Seta, Chifari, & Denaro, 2016).

Theoretical assumptions underlying the training course

As accepted nowadays, meaningful and effective learning depends on the extent to which training attends to: (a) individuals' own experiences prompting experiential learning; (b) active learning, providing opportunities for "hands-on" work; (c) personal goals and daily-life needs (Garet, Porter, Desimone, Birman, & Yoon, 2001). Based on this perspective, the literature (e.g., OFSTED, 2001; Belvis, Pineda, Armengol, & More-

no, 2013) highlights the importance of providing, during training, opportunities for self and shared reflection, through dialogue and the sharing of ideas. Indeed, in the field of professional development, training approaches have been moving from merely didactic methods (such as lecturing) towards more complex ones involving problem-solving or reflective practices (Belvis et al., 2013). These comprise an ongoing process of evaluating the application and impact of the new knowledge in practice, in a permanent effort to bridge what is being taught and how it can be used in real contexts (Darling-Hammond, 2006). The same trend is observed in the field of parents' training, in which the linkage between target contents and family experiences and routines has been considered a key feature for effectiveness. As stressed by Kaiser and Hancock (2003), the teaching of strategies to parents should be well-matched to their needs, and embedded in naturally occurring interactions with their children. In a similar way to teacher training, the acknowledgment of parents' beliefs and thoughts is recognized as a starting point for an effective translation of knowledge into concrete realities (Wheeler & Connor, 2009).

The principle that in learning process what matters it is not the information *per se* but how the person perceives and uses it (Woolfolk, 2007) has founded a training methodology oriented towards active learning in which knowledge is built on learner experiences and reflections.

THE INTEGRATED MODEL OF PARENT AND TEACHER TRAINING: AIMS AND DESIGN

The integrated model of training aims to promote community-based interventions in which every element of the school-family system has a key role in the identification and management of pupils' problematic behaviors. Guided by the chief assumption that the reduction of ADHD symptoms and the child's inclusion depend on the establishment of social support networks, the training course brought together parents, teachers and health professionals.

Training outcomes included the development of knowledge and skills for:

1. understanding and applying the principles of Functional Behavioral Assessment (FBA) in a manner that, through the child's observation, the function of his/her challenging behavior can be identified;
2. understanding specific behavioral techniques to improve the child's behavior, building confidence for addressing the child's challenging behaviors and promoting positive ones;
3. using the WHAAM Web Application as a support tool for behavioral assessment and intervention monitoring.

¹ For a more exhaustive review about parent and teacher training programs see the Context Driven Framework <http://www.whaamproject.eu/images/documents/FrameworkLicense.html>

Regarding the first learning aim, participants were guided towards comprehension of the FBA approach so as to better understand the different functions underlying the individual's behavior. As is well established in the literature (Schock, 2010), the functional behavior-analytic approach sees all human behaviors "as serving an environmental function, either to access something or to terminate/avoid something" (p. 2). FBA examines social and physical contexts that may evoke or maintain problematic behaviors. The training addressed the description of problematic behaviors in a specific and measurable manner, as well as of the circumstances surrounding antecedents and consequences of the behavior, both in regard to common ADHD symptomatology and to the experiences brought by the participants. The integration of data concerning the behavioral definition (including contextual and setting features), the rate of occurrence (frequency and/or duration) and environmental circumstances (antecedents and consequences) was approached for portraying behavioral patterns that can ground the formulation of hypotheses about behavior function.

The second training aim was based on the assumption that inappropriateness does not lie in the behavior function but in the way it is expressed (the behavior topography). In light of this, participants were introduced to the design of Behavioral Intervention Plans (BIP) exploring different techniques (Riffel, 2005). In particular, they learnt to:

1. change antecedent circumstances that increased the likelihood of the inappropriate behavior occurrence;
2. relay different behavioral forms to satisfy the same needs – the function – through alternative or replacement behaviors;
3. modify consequences, reducing the likelihood of problematic behavior occurrence and reinforcing alternative behavior, strengthening its linkage to function satisfaction.

Two principles underpinning the quest for intervention plan effectiveness were consistency in implementation (across different contexts and the various people interacting with the child) and continuity, even if the challenging behavior begins to decrease (e.g. Miller & Lee, 2013; Pelham & Fabiano, 2008).

As corollary of all learning process, the WHAAM Web Application (WA) (Spachos, Chiazzese, Merlo, Doherty, Chifari, & Bamidis, 2014; Sanches-Ferreira et al., 2015) was presented and used as a tool to support FBA and the monitoring of behavioral plans. Using WA, learners were immersed in the praxis of ADHD assessment and intervention through a case study focused on the child of each group of stakeholders. Comprising a web application and a mobile app for Android operating sys-

tems, the WA provides a common environment in which parents, teachers and health professionals can:

- a. log the child's undesired behavior topographies (recording the frequency and duration of problematic behaviors);
- b. perform functional assessment (recording ABCs and identifying behavior function);
- c. define behavioral plans (starting strategies) that can be monitored;
- c. monitor the effectiveness of a BIP by analyzing graphical reports that summarize the main results, including comparison between baseline and intervention data and display of a TAU-U index that estimates the effect of the treatment. Examination of this concrete data for plan adjustment in the BIP was also part of the explored contents.

The training course consisted in a six session program held over 3 months. The sessions took place on a weekly basis with exception for the last two sessions, which were interposed by a two week period dedicated to autonomous practice in the use of the WA. In the first three sessions the training program addressed principles related to functional behavior assessment and intervention. The last three sessions were strongly connected with the implementation of these principles through the use of the WA (Table 1).

While following this structure, the training sessions embraced a flexible approach in order to respond to participants' demands and encourage their active participation.

Aligned with the theoretical issues described earlier, Table 2 summarizes the four main assumptions that drive the design of the training course methodology.

The aforementioned assumptions are engrained in Theories about Diffusion of Innovations (Rogers, 2003), which are dedicated to the study of variables influencing change implementation. They emphasize that, as with any other innovation, the adoption/assimilation of a new praxis of assessment and behavior intervention needs to be referenced and built on adopters' experiences and beliefs (e.g. Greenhalgh, Kyriakidou, & Peacock, 2004; Wood, Ferlie, & Fitzgerald, 1998). Accordingly, participants' experience in the field of ADHD was valued in the training, through the use of a scaffolding strategy focused on establishing a constant linkage between teachers' and parents' prior knowledge/strategies for coping with their child's problematic behaviors and the new contents introduced in the training. As such, the training consisted in the following sequential methods:

1. Theoretical and practical demonstrations: exposition of theoretical contents, followed by practical demonstrations through examples that

1 st , 2 nd and 3 rd Sessions		4 th , 5 th and 6 th Sessions	
Contents	Example of Practices/ Reflections and Homework assignments	Contents	Example of Practices/ Reflections and Homework assignments
Introduction to ADHD symptoms, and their impact on students' daily life and contexts of participation; Introduction to FBA and the different forms we can use to discover the purpose or function of challenging behaviors.	Sharing of each one experience; Reflecting on how the ADHD symptoms affect the child daily life.	WA functionalities in the development of an FBA.	Composing the team that will be involved in the assessment and intervention processes (inviting - with the WA - members to join the network of the child); Inserting the description of the child's challenging behavior in the WA; Planning the collection of baseline data (e.g., defining - in the WA - the period and type of observation: frequency and/or duration).
Steps for the implementation of the FBA: (a) identifying the challenging behavior; (b) collecting baseline data about challenging behaviors; (c) using the baseline data to formulate an hypothesis about the behavior function.	Analyzing different sequences of events to identify antecedents and consequences (ABC analysis) of a child's challenging behavior; Collecting data, using a scatterplot and an ABC form, considering their own child's challenging behaviors.	WA functionalities in the development of a BIP.	- Reflecting on the collected baseline data (the behavior patterns identified by each member of the team and the differences on behavior patterns across different contexts); - Defining behavioral goals and strategies in the WA; - Planning the collection of data during the intervention (i.e., defining - in the WA - the period and type of observation: frequency and/or duration).
Introduction to BIPs: vital principles and techniques	Discussing on their child behavior function based on the data collected; Identifying alternative behaviors to replace challenging ones.	WA functionalities in the monitoring of a BIP.	- Comparing data between baseline and intervention period - using graphical data and size effect measures provided by the WA; - Discussing readjustments of the BIP.

Table 1. *Training Structure: contents and examples of practices/reflections and homework assignments addressed in each session.*

Assumption	Considerations for the Training Methodology
There is a tendency to blame the other when involved in a problematic situation.	Bringing parents and teachers together to listen and understand each other's points of view is a crucial condition to create an effective basis for collaboration.
Acceptance of an innovation is strongly linked to individual's perception of its compatibility with norms, values and daily needs.	The constant bridging of training contents to the parents' and teachers' beliefs and ways of interacting with the child must be constantly considered, supporting reflections on how the WA can contribute (or not) to an easier life.
The greatest challenge in the adoption of an innovation lies not its application, but in its sustainability (integration in individuals' routine).	Parents' and teachers' routines and adopted strategies should be well known in order to facilitate WA usage and, foremost, to ensure that they perceive it as helpful (according to their own experiences and needs).
The sustained application of an innovation depends on: (a) individuals' confidence in their ability to apply it and to adapt and refine it to suit their own needs; and (b) on their skills in transferring knowledge from one context to another, thus involving other persons in the process.	Parents and teachers constant support to overcome difficulties and obstacles in the WA use, allowing them to become autonomous users disseminate the WA to other stakeholders.

Table 2. *Main assumptions and considerations for the design of the training methodology.*

demonstrated implementation of the acquired knowledge.

2. **Oriented practice:** after theoretical/practical demonstrations, participants were provided with opportunities to practice their skills via problem solving processes. Support was provided through the use of “thinking aloud” strategies – sharing and discussing the reasoning underlying problem resolution – and the provision of continuous feedback.
3. **Independent practice:** participants implemented the training contents through home assignments. The intention was to promote a link between what was being taught and how it could be used in practice, in order to facilitate the contents’ adoption on a permanent basis.
4. **Reflection:** each session begins with reflection about the homework, exploring how participants experienced the implementation of the acquired skills and knowledge on FBA and BIP. The applicability and the effects of the knowledge implementation were explored.

A questionnaire was submitted to evaluate opinions about the training and the Web Application usability and feasibility; 32 responses were collected, while the remaining were not considered because incomplete.

The participants (including 17 parents, 6 teachers and 9 health professionals) had to evaluate the following aspects of the training:

- a. How the training helped them to better understand and deal with their child’s difficulties and defiant behaviors;
- b. How easy to use and useful the Web Application is for ADHD.
- c. If they would recommend this training to other parents/professionals.
- d. How well the training contributes to enhancing collaboration and sharing between parents and professionals.

The results of questionnaire highlight that, overall, participants perceived the training as a very helpful opportunity to promote a better understanding of the child’s problem behaviors, and specifically in terms of the function they serve (Fig. 1).

Generally, users considered the training contents acceptable. The strategy of providing a joint session of training to all the people in the child’s network is seen as an effective educational method especially for sustaining group interaction, receiving immediate feedback about experiences and issues, jointly analyzing, sharing and finalizing common interventions about the child’s behavior. The users would recommend the training to other parents, teachers and professionals, and expressed the intention to participate in an advanced edition of the course (Fig. 2).

Qualitative results

Participants

A total of 40 persons participated in the training course, 25 from Portugal and 15 from Italy. The training participants were recruited on a team basis, bringing together figures who embody the social support network around a child with ADHD. The teams enrolled in the training were composed of parents, teachers and health professionals (e.g. psychologist, therapists) interacting with a child with ADHD.

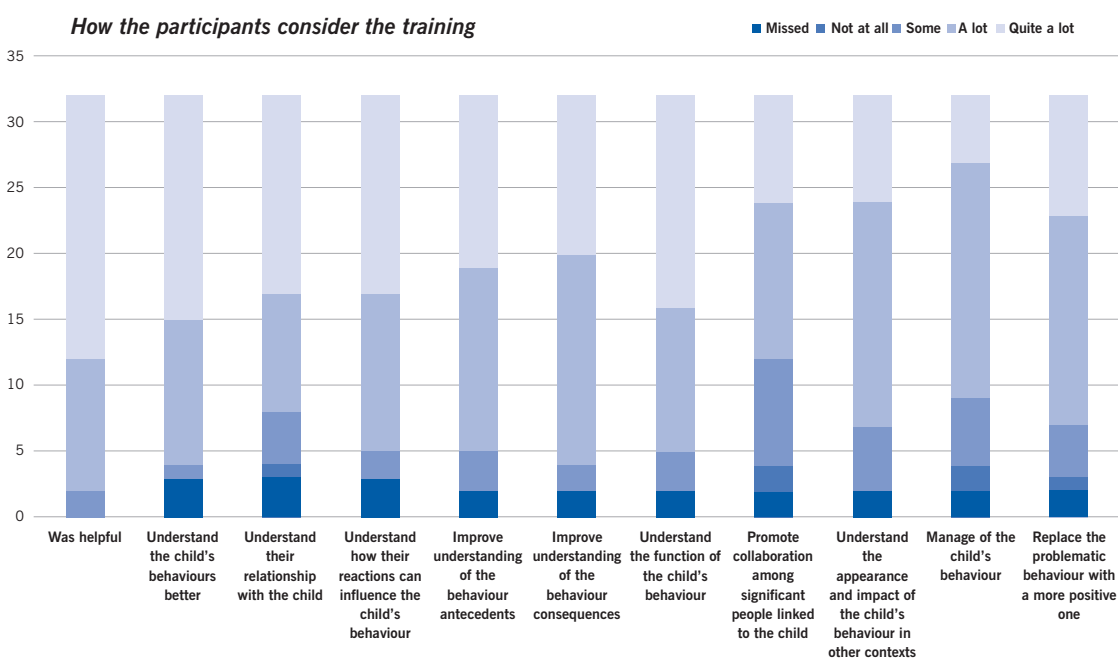


Figure 1. Considerations about the training path.

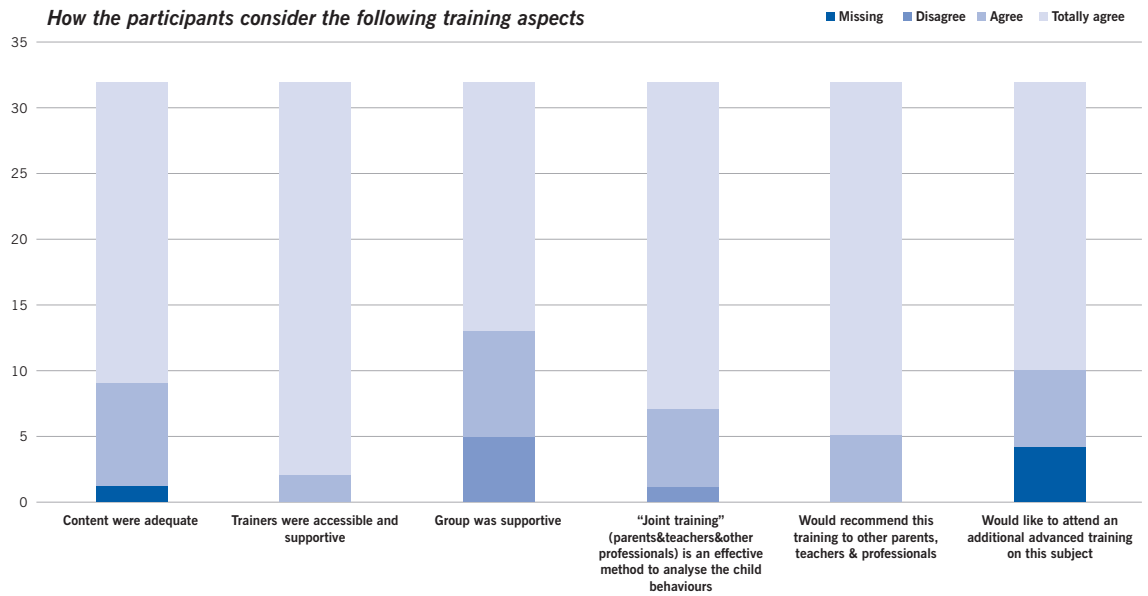


Figure 2. Considerations about some specific aspects of the training path.

The users evaluated the WA, comprising a desktop and mobile element, as an easy (E) and useful (U) application in general. The desktop functionalities like the introduction of case data and building of the child's network are considered easy to use and useful. The setting of problem behavior and planning of an assessment with a baseline observation period are not considered difficult to manage, and are seen as both useful and easy (Figure 3 and 4). Finally, figure 5 shows that most of the participants express a positive evaluation of mobile app functionalities, and consider it as a useful tool to record and monitor the child's behavior.

CONCLUSION

At a time when a number of efforts have been developed to implement a multimodal approach in ADHD treatment (e.g. Pelham & Fabiano, 2008), the methodology described in this paper proposes a model of parent and teacher training to cope with the child's problematic behaviours, prompting an integrated view of their needs and the building of a social support network around them. By embracing key premises underlying a constructivist perspective of pedagogy (e.g. Garet, Porter, Desimone, Birman, & Yoon, 2001), the structure and methodology of this training represents a way of building a constant

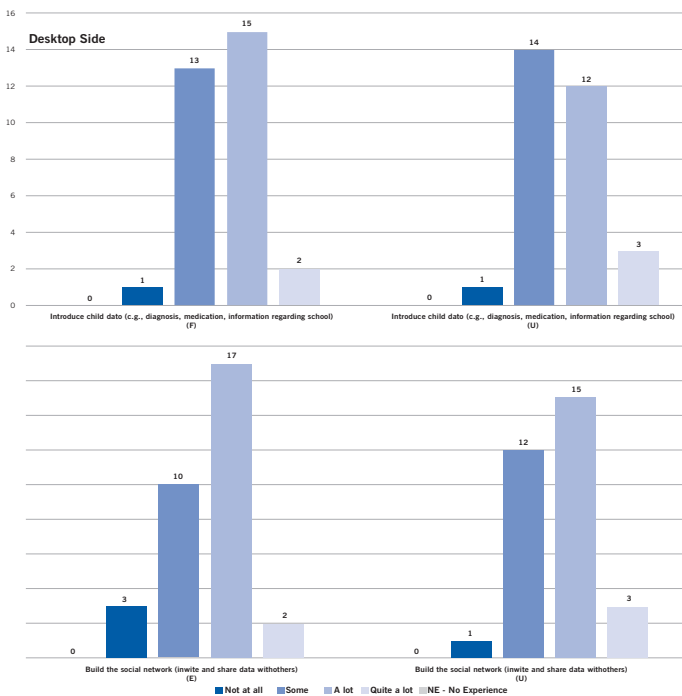


Figure 3. Participant's evaluation of the introduction of child data and the building of social network.

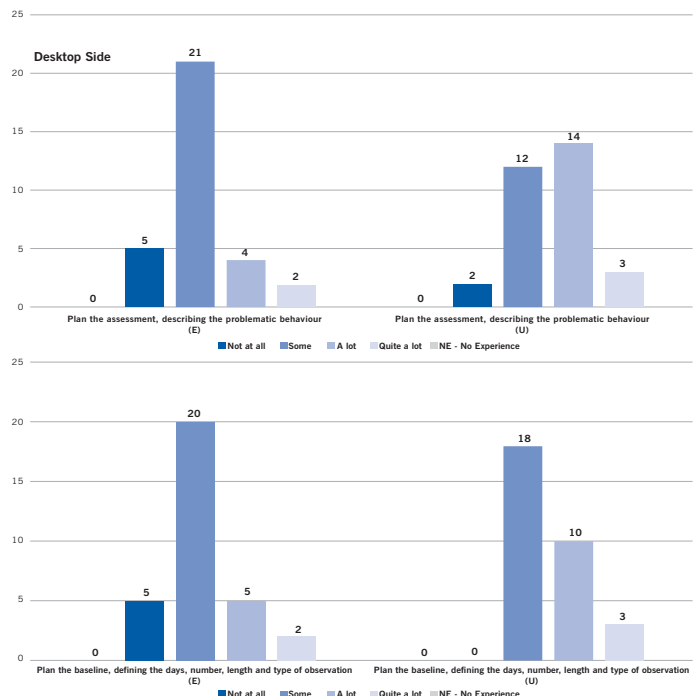


Figure 4. Participant's evaluation of the different phases of the assessment process.

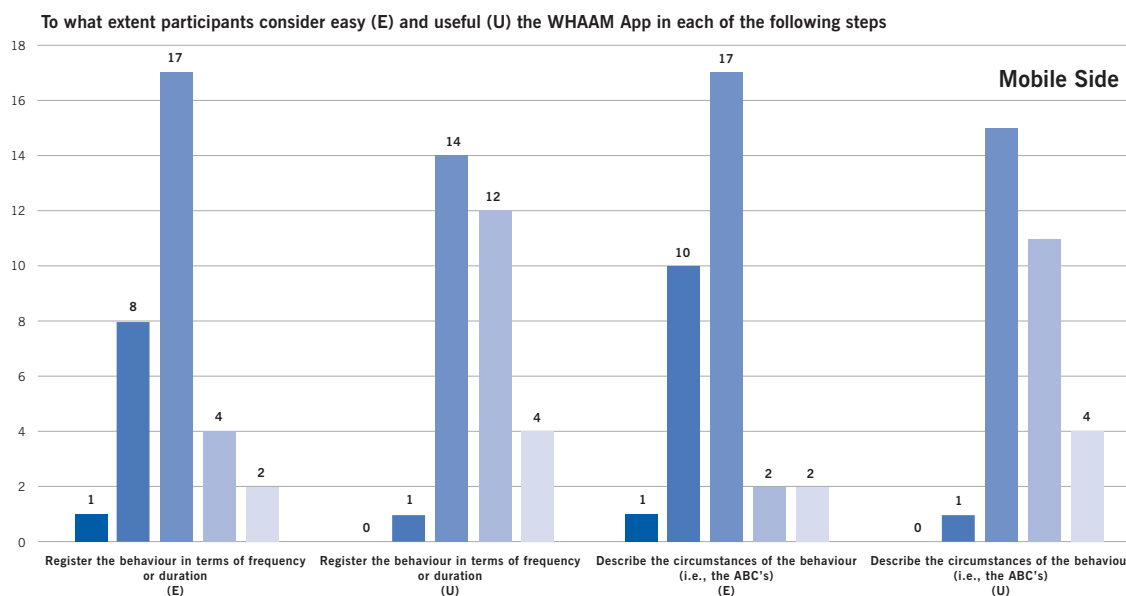


Figure 5. Considerations about the mobile app.

linkage between program contents and the individual's own experiences grounded in self and shared reflections. This may embody a generalizable model for the capacitation of parents and teachers in the management of behavioural problems.

Analysing the reported experience and participants' positive insights, three features emerge as drivers of the training program's success: (i) its practice-oriented approach, considering the child each team supports and adopting his/her individual circumstances as reference points for planning and implementing intervention strategies; (ii) its team-based approach, encompassing the intersection of parents', teachers' and health professionals' views and perspectives; and (iii) its focus on the use of an innovative tool – the WHAAM Application – supporting integration of ADHD assessment and intervention processes. These three distinctive features of the training model seem to reinforce the underlying theoretical assumptions, which highlight problem-solving and reflective practices based on individuals' experiences as key methods for effective training (e.g. OFSTED, 2001; Belvis, Pineda, Armengol, & Moreno, 2013). The constant bridging of what is being taught and how to use it in real contexts (through case studies regarding assessment and intervention) facilitated the implementation of an approach that fits parents' and teachers' needs and that considered their naturally occurring interactions with the child. Participants' insights demonstrated the training's impact on their understanding of the child's behaviour and on their capability to manage problematic situations. The team-based approach – bringing together the views of parents, teachers and health professionals – was recognized as having a central role in improving knowledge about the expression of the child's behaviour in different contexts and in re-

inforcing a collaborative approach in the building of a common understanding of the child's needs and the adoption of shared goals and strategies. The collaborative approach in the use of the WA as an instrumental support for operationalization – as announced in previous studies (Sanchez-Ferreira et al., 2015) – encourages the constitution of a child network that integrates the contribution of all FBA members in designing a BIP.

A set of challenges arises concerning the conception of strategies for guaranteeing sustained transfer of this innovative approach (the contents learnt and the use of the WA) to daily routines. As stressed in the Theories about Diffusion of Innovations (Rogers, 2003), the greatest challenge in the adoption of an innovation is not merely in its application but in its *routinization*. Active learning methodologies built on adopters' experiences and beliefs – as presented in this training model – embody *per se* a positive facilitator for the integration of the new knowledge and skills in parents' and teachers' routines (e.g. Greenhalgh, Kyriakidou, & Peacock, 2004). Furthermore, the potentialities attributed to the WA seem to embody supportive factors for facilitating the praxis of FBA and BIP, and foster continuous prompting of collaborative relationships. The remaining challenges – such as time constraints and complexity in the identification of behaviour antecedents and consequences – require additional supportive mechanisms that extend the training model so as to keep helping parents and teachers to overcome difficulties and obstacles on a daily basis.

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