INCLUSIVE UDL-BASED SPECIAL NEEDS TEACHING PRACTICES - RESULTS FROM AN EXPLORATION-DRIVEN INQUIRY AT THE UNIVERSITY OF REGGIO CALABRIA

L'AGIRE INCLUSIVO DELL'INSEGNANTE DI SOSTEGNO IN CHIAVE UDL RISULTATI DI UN'INDAGINE ESPLORATIVA PRESSO L'UNIVERSITÀ DI REGGIO CALABRIA

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ABSTRACT

The present study wants to stress UDL's (Hall et al., 2012; Meyer et al., 2014) opportunity to become an effective operational perspective for the creation of practical inclusive educational scenarios. The implementation of this paradigm would basically show how to best valorize diversity (Cottini, 2014; Ghedin & Mazzocut, 2017; Ianes, 2005; 2016) by reconsidering learning contexts and approaches as well as by promptly proposing learning designs that can adequately match each pupil's skills and abilities.

Il presente studio vuole mettere in risalto come lo Universal Design for Learning (Hall et al., 2012; Meyer et al., 2014) possa diventare un'idea operativa efficace per la realizzazione di scenari didattici pratici ed inclusivi. In sostanza, l'applicazione di tale paradigma vorrebbe far comprendere come meglio valorizzare la diversità (Cottini, 2014; Ghedin & Mazzocut, 2017; Ianes, 2005; 2016), ripensando i contesti, gli apprendimenti ed intervenendo sin da subito con progettualità accessibili alle capacità di ciascun allievo.

KEYWORDS
Inclusive Educational Practices, Didactics, Special Needs, University Context, Universal Design for Learning
Pratiche educative inclusive, didattica, bisogni speciali, contesto universitario, design universale per l'apprendimento

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Introduction

Studies carried out in the various educational contexts so far show that the inclusive educational challenge must first be based and developed on a profound respect for all people in their entireties.
By means of the UDL pedagogic paradigm (Black et al., 2015; Katz, 2015; Meyer et al., 2015; Murawskj & Scott, 2021), Special Needs teachers can specifically co-design effective approaches that respect each student's own characteristics. A new modern inclusivity paradigm is thus developed, which involves each context and learner differently and functions harmoniously for every one of them.
The UDL educational approach substantially enables treading the path of inclusivity more adequately than in the past; this time with a flipped perspective, though – designing personalized action for all pupils right at the outset. This substantial change of paradigm makes for a new conception of educational design which is centered on the individual without discriminating against other individuals in any way whatever.
Our intention to propose inclusive action through UDL here at the University of Reggio Calabria as well arises from numerous questions on all possible declinations of this pedagogical paradigm within the established educational tradition so far.
We aim at possibly identifying definity designs and try to spread definite inclusive UDL-based practices with a view to extending them to higher education as well.
UDL-based educational practices could be an important step forward for the educational community in Calabria and a cultural multi-dimensioanl challenge based on the creation of life designs in a more and more complex society.

1. The Universal Design for Learning as an Educational Challenge

Most evidence-based research shows that proposing the creation of educational environments according to UDL principles (CAST 2011; 2018; Mangiatordi, 2017; 2019) can mean a significant improvement in teacher cooperation as well as in designing educational approaches suitable for all pupils, including special needs ones (Schelly et al., 2011).
The idea behing the UDL is that diversity is a condition that necessarily includes not only the most blatant differences between the various pupils, but also more hidden peculiarities between and among them, as has specifically been shown by neuro-scientific research (Yang, Fischer, 2009) whereby the adoption of different educational approaches is practically inevitable.
As some international research shows (Black et al., 2015), the educational inmplementation of the UDL indicates that the application of the principles of this approach improves learning in pupils with disabilities.
Even other studies in Italy (Aquario et al., 2017) investigated the possible implementation of UDL in education and recognized its importance in improving inclusive educational approaches in all teachers.

The above-mentioned findings lead us to consider the importance of the UDL educational paradigm in helping special needs teachers to orient people by means of appropriate learning content and direct educational approaches toward significant competence development objectives.
Thus, the drift from traditional educational patterns toward ones which propose the adaptation of the curriculum to the needs of the individual pupil is now clear. A school based on standard models and strict programs will then give way to one which valorizes the individual dimension, history and potential of each and every student.
The UDL approach is a valid means to overcome the main difficulties related to great educational challanges, and an effective strategy in an inclusive school.
Thanks to the UDL approach, also the role of the special needs teacher changes in its slow transversal approach to teachers and students with disabilities in developing new competences. So this seems to be the very challenge that students are corageously ready to face, which witness a great cultural "step forward" toward a modern perspective of inclusive education based on a multi-dimensional view of the individual.

2. Research

Objective

The research carried out by the University of Reggio Calabria wants to adopt inclusive UDL-based educational approaches on the basis of the opinions of future special needs teachers. Both common and distinctive features between the various orders of schools in Italy are to be discussed. By investigating Calabrian university environments, we ask ourselves how UDL could become an inclusive methodology suitable for the creation of operational, flexible and innovative educational scenarios.

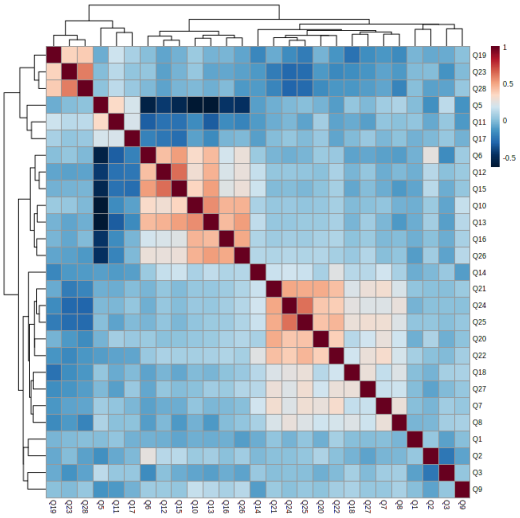
Methodology

The research has involeved 677 special needs students from its 6^{th} educational active training course and a questionnaire was administered which enabled us to valorize the future teachers perception that disability and inclusive processes are vital to learning and his/her willingness to implement UDL-based learning strategies. Before carrying out the statistical analyses proper, however, questionnaire reliability has been calculated according to Cronbach's Alpha coefficient, which yielded a score of 0.59. A variance analysis (one way ANOVA) of the data has been carried out through Tukey's test (Chong et al., 2019) on a post-hoc basis ($P \leq 0.05$). These statistical evaluations have enabled us to identify, among the various questions of the test, those with discrepant responses between the 4 school orders examined.

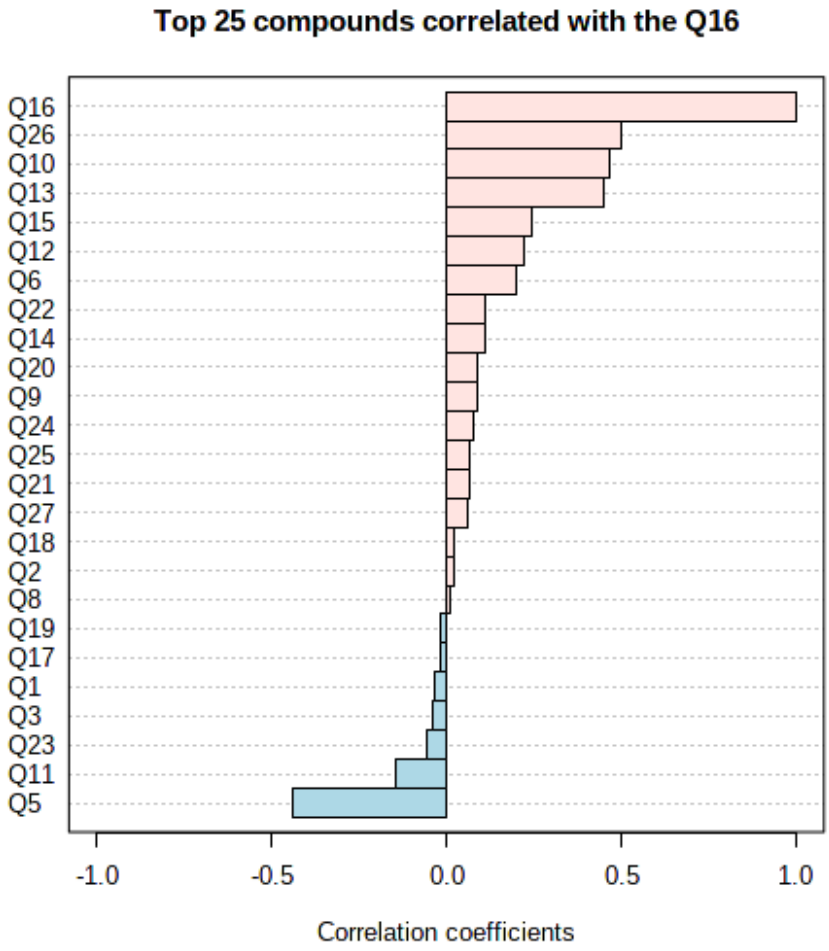
The questions have later been analized through the Pattern Hunter (Chong et al., 2019) correlation test and distances have been measured through Pearson's linear correlation test (r).
A heatmap of the significantly different questions has finally been drawn and the results have been clustered by calculating the Euclidean distance and applying Ward's clustering method (Mirkin, 2005; Ward, 1963).

Results

Between and among the 4 orders of schools examined, the results have evinced the presence of 2 clusters. The first cluster in particular grouped kindergarten and primary school; the second cluster grouped junior high school and senior high school.
The most significand data of the research shows the future special needs teachers' agreement on implementing UDL practices as the only way to tread the path of successful inclusive education.
One line of future development in the university training of future special needs teachers must necessarily focus on the design and implementation of UD-based inclusive practices. Training competent special needs teachers inevitably requires designing specific educational routes that would enable not only the acquisition of certain notions, but also the learning of a new way of interpreting and combining them, thus improving higher education both in general and in particular.
The specialization degree sample is distributed as follows: 39,9% for senior high school, 33,7% for junior high school, 22,5% for primary school and 3,8% for kindergarten.
Pearson's test has evinced various correlations (Figure 1): e.g., the question whether teachers did or did not adopt an ICF-based Individualized Educational Plan, which was graphically represented through the pattern hunter (Figure 2), appears to be positively correlated to Q26 (The school you teach/taught in adopts orientation and/or inclusivity practices within motricity-based activities.), to Q10 (The classrooms you teach/taught in can be accessed by students with disabilities.) and to Q13 (Has the school you teach/taught in appointed an inclusivity agent?).

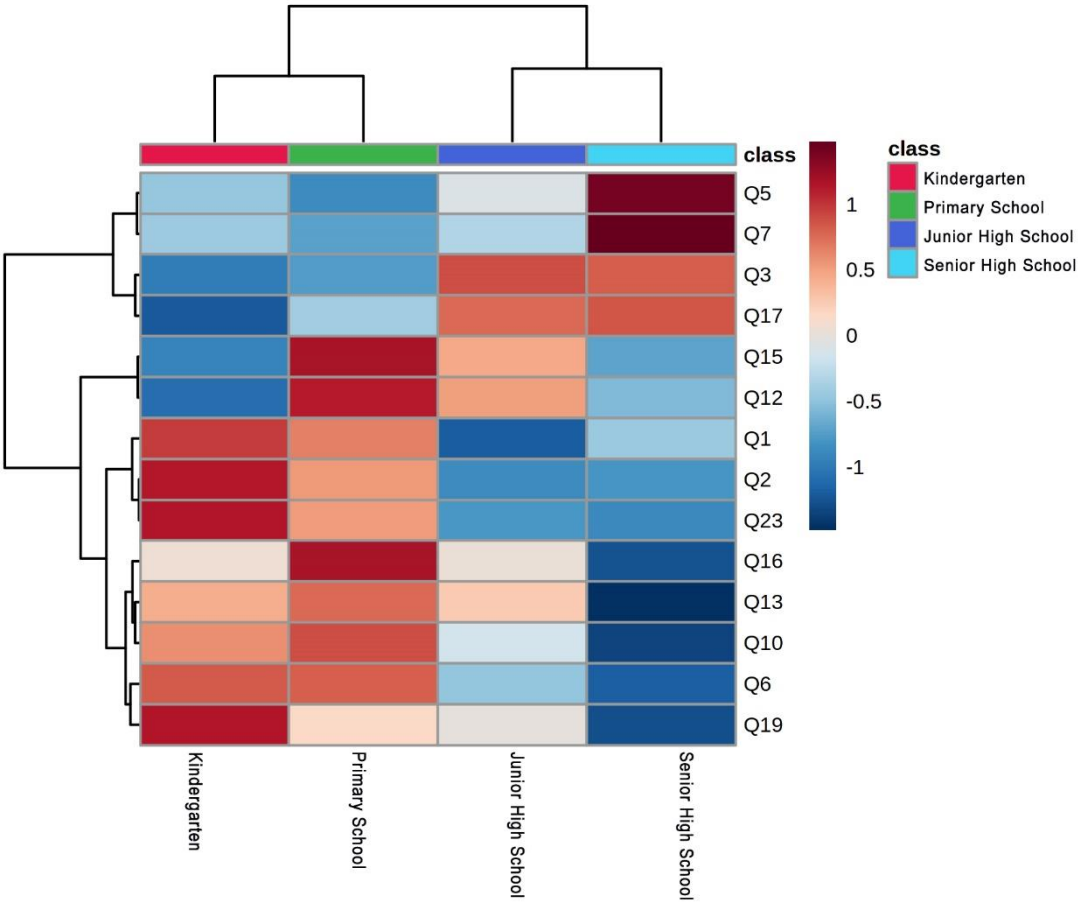


Graph 1. Correlation Heatmaps



Graph 2. Pattern hunter analysis evincing the correlations with Q16 (*Does the school you teach/taught in has adopted an ICF-based Individualized Educational Plan?*).

Furthermore, a variance analysis of the data has been carried out which has enabled us to identify 14 out of 28 responses as discrepant between and among the 4 orders of school examined. These responses have been graphically reported on a heatmap (Figure 3) and analyzed through a cluster analysis which has enabled us to sever 2 separate clusters.
Among the 4 school orders in question, Cluster A groups kindergarten with primary school and Cluster B groups junior high school with senior high school.



Graph 3. Clustering result shown as a heatmap (distance measured using Euclidean, and clustering algorithm using ward.D).

Discussion

As Figure 3 shows, teachers in Cluster B agree that an ICF-based Individualized Educational Plan should be adopted, that the school they have taught in provides for orientation and inclusion practices and initiatives for students with disabilities or any other special needs (Q17) and that the classrooms they have taught in can be accessed by students with disabilities (Q10). So, junior and senior high school teachers have agreed on the above questions, unlike Cluster B ones (at kindergarten and primary school).

All 4 teacher groups have substantially agreed on Q18 (It is important to resort to UDL for the special needs teacher to create a most inclusive educational context) - 86% of them said yes.
Still on the heatmap (graph 3), the cluster shows the 14 questions that were deemed significant by the variance analysis (One-way ANOVA) through the LSD (least significant differences) test on a post-hoc basis (P≤0.05). N=677. On Q19 (Does UDL valorize designing and self-determination in the person with disabilities (Cottini, 2016; Deci & Ryan, 1985; 2000; Wehmeyer et al., 1996; 2003) (both in terms of learning contexts and in terms of learning styles)?), Cluster A teachers have shown overall agreement, whereas opinion was uncertain or divided between and among Cluster B teachers.
So, the most significant data of the study evinces the future special needs teachers' definite agreement on resorting to inclusive educational practices based on the Universal Design for Learning paradigm.
As regards what has been said so far, it is vital to stress that the European Agency for Development in Special Needs Education (Watkins, 2012) considered inclusion a universal educational approach that targets and addresses all students, not only those with special needs, is based on fundamental values such as the access to learning through presence, attendance, quality of experience and learning through participation and achievement of educational results and success. Earlier on, the UN Convention on the Rights of Persons with Disabilities (2006), imposed the safeguard of the human rights of people with disabilities within a model whereby social relations are to be considered personal and environmental features in their own right.
Therefore, according to the aforesaid UN Convention, it is not people that should be included, but processes, spaces, actions, times and ways that should be designed on the basis of inclusivity principles.

Questions That Have Appeared Consistent with the Objectives of the Research

Q8 – Inclusivity enables students to acquire greater knowledge of disabilities and/or special needs (Italian. BES) (1: never, 2: sometimes, 3: quite often, 4: usually, 5: always).
Q10 – The classrooms you teach/taught in can be accessed by students with disabilities (1: never, 2: sometimes, 3: quite often, 4: usually, 5: always).
Q11 – Could you please specify some “architectural barriers” in the school you teach/taught in?
Q16 - Does the school you teach/taught in has adopted an ICF-based Individualized Educational Plan? (1: never, 2: sometimes, 3: quite often, 4: usually, 5: always).
Q17 - Does the school you teach/taught in provide for orientation and inclusion practices and initiatives for students with disabilities or any other special needs? (yes, no, do not know).

Q18 – It is important to resort to UDL for the special needs teacher to create a most inclusive educational context (86% of them).
Q19 - Does UDL valorize designing and self-determination in the person with disabilities (both in terms of learning contexts and in terms of learning styles)? (yes, no, do not know)
Q25 – Do you think motricity knowledge can orient special needs teachers toward an inclusive designing of P.E. teaching? (1: never, 2: sometimes, 3: quite often, 4: usually, 5: always).
Q26 - The school you teach/taught in adopts orientation and/or inclusivity practices within motricity-based activities (1: never, 2: sometimes, 3: quite often, 4: usually, 5: always).
Q27 – Is it inportant to resort to a totally accessible physical environment in order to design more inclusive motricity spaces? (1: never, 2: sometimes, 3: quite often, 4: usually, 5: always).

Conclusions

The education and training routes implemented in the various school types and orders in Italy today often suffer a lack of innovation and a tendency toward repetitiousness which have been quite notorious of Italian schooling for decades. Prospects for innovation and renewal are intimately related to the country's ability to invest in schooling and educational routes for teachers. Recent legislative impulses and funds raised through the National Recovery and Resilience Plan have evinced the Italian Government's engagement in trying to produce a radical renovation that is going to substantially support the creation of an autonomy which was already publicized in Presidential Decree No. 275/99 and reformulated through Law No. 107/2015.
A real innovation process, however, needs much longer and more articulated and timely operational strategies that would entail key deadlines in planning, training, reformulation, implementation and revision. The various steps would require additional efforts on the part of future teachers, who should, in their turn, be enticed to train at various levels and in various sectors (education, specific knowledge, methodology, digital skills and pedagogy, to name but a few). Improvement in one's own educational practices and an UDL-based inclusivity-oriented reformulation of educational methods should become familiar tools for teachers, which means they must necessarily be provided through solid permanent training routes for school operators at all levels (Lo Iacono & Cardinali, 2022).
According to the special needs teachers in the sample of the present study, the creation of inclusive UDL-based environments can only be ensured by a carefully planned management of cognitive and meta-cognitive class dynamics. Moreover, the ability to create universally accessible contexts and environments is the only

precondition for a fertile and fruitful educational process to take place. Unlike curricular subject teachers, who are more typically focused on teaching specific notions than on fostering inclusive routes, special needs teachers prove to concentrate more deeply on the need to implement strategies which would promote structural equity and a comfortable habitat by starting from the valorization of anyone's individual aptitudes and emotional skills (Morganti, 2012). The present study evinces the teacher's strong need to activate inclusive educational practices to support learning. As an active subject in his/her own educational route, each and every pupil must enjoy universal accessibility to spaces, tools and media to contribute most effectively to the construction of his/her own knowledge. This research has shown that educational practices are most effective and successful in those schools where inclusivity-based routes are activated in educational environments fostering active participation, the cobuilding of knowledge in its multifold facets, welcoming attitudes, orientation and cooperative learning.

Developing and practicing UDL-based education within these scenarios fosters instances of knowledge-co-building-based learning through the pupil's full access to structures, practices, uses and content. The construction of UDL-based educational practices couples with the strengthening and fruitful development of soft skills. Within a confortable, familiar and universally-accessible learning environment, pupils can develop their own self-determination and raise their own levels of self-effectiveness, self-confidence and self-esteem (Bandura, 2000).

As regards cross-skills, UDL-based educational routes enable teachers to intercept special educational needs and wants in pupils that must implement personal competences, skills and personal attitudes along with affective, relational, emotional, metacognitive and social skills. Only through his/her well-being can the pupil stand out and effectively contribute to his/her own educational success. As the present study shows, school must be the place where one can feel at ease: the creation of UDL-based educational contexts and environments fosters positive and effective interpersonal relations between and among teachers, in an atmosphere of joint educational responsibility and inclusive practices. It does so by activating educational attitudes that promote the personal growth and development of pupils who are happy to find out they can cooperate in a positive context and within viable and universally-accessible educational environments.

Thus, the challenge for the renewal of Italian schooling consists in publicizing the aforesaid practices and implementing the innovations that are vital to the school system, starting from the spreading of new educational theories and methods (such as UDL-based ones) which mark the achievement of new educational goals through a permanent training of future teachers.

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