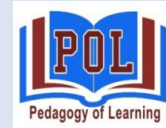


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Exploring Relationship between Perception of Middle Stage Students on Universal Design for Learning and their Socio-Emotional Competence

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Abstract: The study aims to explore the relationship between the perception of Middle-Stage Students on Universal Design for Learning and Socio-Emotional Competence. To provide empirical insight, it used a quantitative correlational design. Both self-made and standardised instruments were used to gather data from middle-stage students. To ensure equal representation, 120 students were chosen through simple random sampling. The findings reveal a weak negative correlation between the perception of middle-stage students on UDL implementation and socio-emotional competence, which is not statistically significant. Cultivating socio-emotional competence may necessitate a more integrated approach that blends explicit socio-emotional learning strategies with UDL principles to support holistic student development.

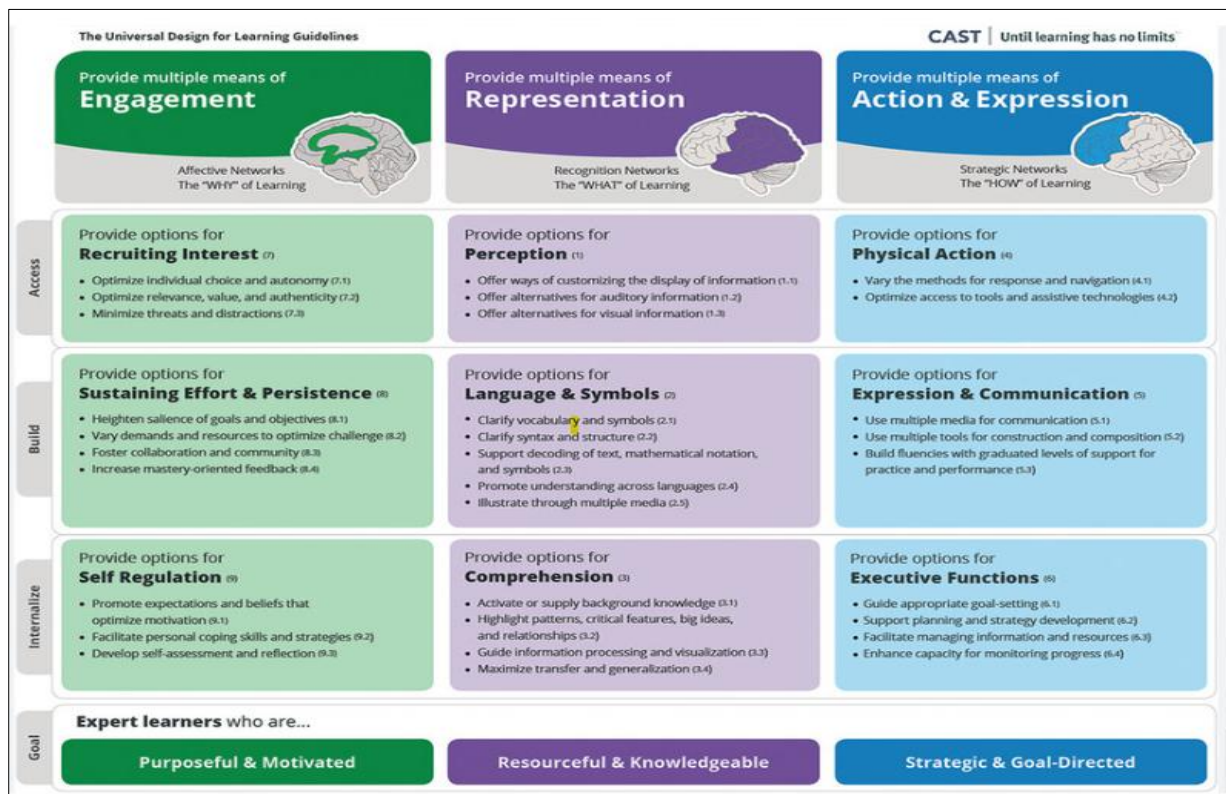
Keywords: Universal Design for Learning, Socio-Emotional Competence, Inclusive Education, Learner Engagement

Introduction

UDL is a multifaceted and nuanced theoretical framework of learning that draws on research in the fields of neuroscience, education, and technology. It conceptualises teaching and learning as a dynamic system that must be reformed to better meet the needs of learners in the 21st century (Rose & Meyer, 2006). The principles of UDL are based on research derived from multiple fields of research, such as neuroscience, the learning sciences, and cognitive psychology. UDL derives from concepts such as the Zone of Proximal Development, scaffolding, mentoring, and modelling, and related foundational work by Piaget, Vygotsky, Bruner, Ross, Wood, and Bloom, who utilised comparison in their approach for investigating individual variation and pedagogic approaches that work well with that variation (CAST 3.0). Multiple means of action and expression, multiple means of representation, and multiple means of engagement are the three tenets of Universal Design for Learning. According to (CAST 2020), the affective networks of the brain, where learning, motivation, and emotional response take place, are the foundation of the first Universal Design for Learning principle, multiple means of engagement. This idea emphasises how important it is to give students a variety of ways to interact with the material to increase their motivation and sustained interest. The second UDL principle on providing multiple means of representation highlights the brain's recognition networks. To guarantee that every student can understand and make sense of the material, this involves presenting the content using a variety of

teaching techniques and formats. Teachers can help students become more knowledgeable, resourceful, and strategic by providing information in a variety of formats. Strategic brain networks, which are responsible for organising, planning, and executing actions, are the subject of the third Universal Design for learning principle.

This principle emphasises the necessity of giving students a variety of action and expression options so they can convey their knowledge in a variety of meaningful ways. Instead of depending on one assessment mode, students should be provided the option to present their knowledge through modes like written reports, creative projects, hands-on activities, or technology. By providing these options, educators support students in becoming purposeful and goal-directed learners, enabling them to express their learning in ways that align with their strengths and preferences. In UDL, students have several ways to access and achieve their learning goals and many opportunities to learn new knowledge. Students have the right to choose the appropriate way to showcase their learning, and they are assessed through multiple methods until the teacher obtains evidence of their learning (King-Sears, 2014).



(Figure 1: Universal Design for learning (UDL) guidelines. Source: - CAST (2018). Universal Design for Learning Guidelines version 2.2. Retrieved from <http://udlguidelines.cast.org>

There is a growing awareness in the U.S. among educators and policymakers about the importance of social and emotional development for successful student performance in preschool and elementary school (Camilli, Vargas, Ryan, & Barnett, 2010; Denham & Weissberg, 2004; National Association for the Education of Young Children, 2009; NAESP Foundation Task Force on Early Learning, 2011; National Research Council, 2012; National School Readiness Indicators Initiative, 2005). The five domains of SEL skills have immense importance right from the very beginning, but these are especially important as children start moving towards the phase where they will be interacting with peers in the absence of their parents, as well as with other children. Social and emotional skills will play an important role in deciding the level of preparedness that the children will have to face the challenges of the class (Campbell & von Stauffenberg, 2008; Denham, Brown, & Domitrovich, 2010).

Social and emotional learning comprises the processes of acquisition of socio-emotional competence among children. There are five socio-emotional competencies, which include: Self-awareness, Self-management, Social awareness, Relationship skills, and Responsible decision-making.



(Figure 2. The Five Social and Emotional Learning Core Competencies. Source: - CASEL (Collaborative for Academic, Social and Emotional learning). Retrieved from (<https://casel.org/fundamentals-of-sel/>)

Classroom teachers can help students develop social and emotional competencies by directly teaching these skills, by using engaging curriculum materials, and by implementing specific instructional and classroom-management practices (Cohen, 2006; Durlak et al., 2011; January, Casey, & Paulson, 2011; Kress & Elias, 2006; Weare & Nind, 2011; Zins et al., 2004). Effective teaching practices depend on quality instructional methods in inclusive classroom environments that provide students with meaningful opportunities to academically and socially participate in all aspects of the classroom community. These practices promote thoughtful classroom dialogue, foster respect for diverse thinking capacities, and create learning settings that provide equitable opportunities for all learners (Sharma et al., 2021). UDL prompts us to consider how we can create opportunities for diverse learners to be included by incorporating curricula and instructional activities that offer multiple means of representation, expression, and engagement (King-Sears, 2009). Universal Design for Learning (UDL) is a system to remove barriers to schoolchildren's learning and participation by suggesting specific and indirect acts that can be concretised in different ways (Campos et al., 2020). Use of Universal Design for Learning (UDL) lets teachers organise their classes in ways that save time and energy getting their classes organised and ensures the majority of students' benefit, while students with diverse needs are also for (Spencer, 2011). When students are given choices in how they demonstrate understanding, they feel more valued, respected, and emotionally connected to the learning process (Jiménez et al., 2007). UDL's contribution to responsible decision-making is yet another significant benefit. Students develop the critical thinking and problem-solving abilities required for interacting with emotional and social contexts through reflective practices and scaffolded support (Rao & Meo, 2016). Practices that support social and emotional learning are the foundation for creating an inclusive environment (McBrien, 2022). UDL and SEL function collaboratively to facilitate the varying learning needs of students within classrooms, developing robust, inclusive contexts.

Rationale of the Study

Classrooms are becoming increasingly heterogeneous, and students show varying learning tendencies, cultural orientations, and emotional needs. Such diversity is rarely accommodated by the conventional “one-size-fits-all” pedagogical approaches. This led to the development of the Universal Design for Learning (UDL) framework. This anticipatory, inclusive teaching approach provides a range of engagement, representation, and expression options, aiming to accommodate all students (CAST, 2020).

Although Universal Design for Learning (UDL) has gained recognition for enhancing accessibility and learning, its potential to improve students' socio-emotional growth has not yet been realised, particularly in middle-level education. The National Education Policy (NEP) 2020 of India focuses on inclusive education, socio-emotional learning, and adaptive pedagogies to support equity and excellence for all learners. In this context, investigating the relationship between the perception of UDL and socio-emotional competence becomes not only relevant but also necessary.

Research Question

The following research questions are examined.

- 1) What are the perceptions of middle-stage students regarding the implementation of Universal Design for Learning in the classroom?
- 2) What is the level of socio-emotional competence among middle-stage students?
- 3) Is there any significant relationship between perception of middle-stage students on Universal Design for Learning implementation and their socio-emotional competence?

Objectives of the Study

Based on the research question, the following research objectives are addressed.

- 1) To explore middle-stage students' perceptions regarding the implementation of Universal Design for Learning in the classroom.
- 2) To assess the level of socio-emotional competence of middle-stage students.
- 3) To examine the relationship between perception of middle-stage students on UDL implementation and their socio-emotional competence.

Hypothesis

There is no significant relationship between perception of middle stage students on UDL implementation and their socio-emotional competence.

Method and Procedure

Design: Correlational Research Design (Creswell, 2014) was adopted to explore the relationship between perception of middle stage students on universal design for learning and their socio-emotional competence. This design was appropriate for understanding the perceptions and relationships between variables within a natural educational setting.

Population & Sample: The population of the present study comprised Grade VIII students of the Middle Stage studying in Government schools in Odisha (N = 301,003), as reported in the UDISE+ Report 2024–25. The district of Jajpur was selected purposively for the present study. Thereafter, Grade VIII students were selected using the simple random sampling technique. According to the sample size calculation at a 95% confidence level using RaoSoft, the appropriate sample size for the study was estimated to be 385 students. However, owing to practical difficulties during data collection, including the unavailability of respondents and the submission of partially completed questionnaires, the researcher was able to obtain data from 120 Grade VIII students. Therefore, the final sample for the present study consisted of 120 Grade VIII students from Government schools in Jajpur district of Odisha.

Tools: The present study employed two tools for data collection: (i) UDL Perception Scale, developed by the researcher based on the UDL guidelines of CAST (2018), and (ii) Socio-Emotional Competence Scale (SECS) developed by Mingming Zhou and Jessie Ee (2012). The SECS consists of 25 statements covering five dimensions: self-awareness, social awareness, self-management, relationship management, and responsible decision-making. The scale has satisfactory reliability (0.89) and validity (0.84).

Statistical Techniques: Descriptive statistics mean, & SD (Creswell, 2014) to summarise students' perceptions and socio-emotional competence levels, and Pearson's correlation coefficient (Creswell, 2014) was used to examine the relationship between UDL implementation and socio-emotional competence.

Result and Discussion

Objective-1: Explore middle-stage students' perceptions regarding the implementation of Universal Design for Learning in the classroom.

Descriptive statistics were used to examine middle-stage students' perceptions about the implementation of Universal Design for Learning (UDL).

Table 1: Perceptions regarding the implementation of Universal Design for Learning (UDL) in the classroom.

	N	Minimum	Maximum	Mean	Std. Deviation
UDL Perception	120	119.00	157.00	141.96	6.15
Valid N (listwise)	120				

The results of Table 1 revealed that middle-stage students experienced a generally positive opinion of the way Universal Design for Learning (UDL) was being implemented in the classroom. With a mean score of 141.97 (SD = 6.16), the scores ranged from 119 to 157, indicating that students generally had favourable opinions about UDL practices. There was broad agreement regarding the positive application of UDL in classrooms, as evidenced by the comparatively low standard deviation, which shows that the majority of students' opinions were in close agreement with the mean. The finding is that students value the inclusive teaching methods used in the classroom and have a positive perception of UDL practices.

Objective -2: To assess the level of socio-emotional competence of middle-stage students.

The overall level of socio-emotional competence among middle-stage students was calculated using descriptive statistics. The mean and standard deviation of the socio-emotional competence scores were calculated to understand both the central tendency and variability of the data.

Table 2: Level of socio-emotional competence of middle-stage students.

	N	Minimum	Maximum	Mean	Std. Deviation
SEC	120	81.00	143.00	114.00	16.30
Valid N (list wise)	120				

The results in Table 2 indicate that the socio-emotional competence scores of the 120 middle-stage pupils ranged from 81 to 143, with an overall mean of 114.01 and a standard deviation of 16.31. Students typically exhibit a satisfactory level of socio-emotional competence as indicated by this average, which is in the moderate range. The standard deviation value also shows that there is a discernible spread, with some students performing at comparatively lower or higher levels, even though many students' scores are concentrated around the mean. The results generally indicate that middle-stage students have an acceptable range of socio-emotional abilities, including self-awareness, self-management, and social awareness.

Table 3: Mean $\pm$ SD Classification (M) = 114.01, Standard Deviation (SD) = 16.31

Level of SEC	Score Range	Frequency	Percentage	Interpretation
Low	≤ 97.69	35	29%	Students with below-average Socio-emotional competence
Moderate	97.70 – 130.32	78	65%	Students with average/moderate Socio-emotional competence
High	≥ 130.33	6	5%	Students with above-average Socio-emotional competence

Table 3 reveals that three socio-emotional competence levels were assigned to middle-stage students: low, moderate, and high. Based on the Mean $\pm$ SD Classification, scores below 97.69 were categorised as low frequency (35 and 29%), scores between 97.70 and 130.32 as moderate frequency (78 and 65%), and scores over 130.32 as high frequency (6 and 5%).

Objective -3: To examine the relationship between perception of middle-stage students on UDL implementation and their socio-emotional competence.

Pearson's Product-Moment Correlation analysis was used to find the relationship between students' socio-emotional competence and their perception of the application of Universal Design for Learning (UDL). The direction and magnitude of the linear relationship between the two continuous variables were evaluated using this statistical method.

Table 4: Correlation Analysis between perception of UDL implementation and students' socio-emotional competence.

	SEC	UDL
SEC Pearson Correlation	1	-0.63
Sig. (2-tailed)		.495
N	120	120
UDL Pearson Correlation	-0.63	1
Sig. (2-tailed)	.495	
N	120	120

Table 4 indicates that correlation analysis between perception of Universal Design for Learning (UDL) implementation and socio-emotional competence (SEC) of middle stage students revealed a Pearson correlation coefficient (Creswell, 2014) of $r = -0.63$ with a significance value of $p = 0.495$ ($p > 0.05$). This indicates a weak negative correlation between UDL implementation and socio-emotional competence, which is not statistically significant. The null hypothesis stated that "There is no significant relationship between perception of UDL implementation and socio-emotional competence of middle stage students. Based on the obtained correlation results ($r = -0.63$, $p = 0.495 > 0.05$), the null hypothesis is accepted, as the analysis fails to provide sufficient evidence to reject it. It indicates that, UDL implementation does not show a significant association with socio-emotional competence in the sample taken.

Discussion

In this study, the researcher aimed to investigate the relationship between perception of universal design for learning and the socio-emotional competence of middle-stage students. The results of this research demonstrated that middle stage students had a high level of perception of Universal Design for Learning (UDL) implementation and a moderate-to-high level of socio-emotional competence (SEC). The correlation analysis, however, showed no significant relationship between UDL implementation and socio-emotional competence, implying that while students have positive perceptions of UDL and good enough socio-emotional skills, these two variables seem to exist independently in this scenario. This finding is contrary to existing research, for instance Katz (2013) and Al-Azawei et al. (2017), which had indicated that UDL strategies have a positive impact on students' social-emotional abilities through

engagement and inclusivity. Contextual factors like differences in instructional practices, cultural factors, or differences in teacher readiness to implement UDL, as identified by Rao et al. (2017), can explain this disparity. However, this study corresponds with research conducted by Ok et al. (2021), which discovered that the influence of UDL on socio-emotional development is restricted without direct SEL targeted interventions. The study implies that while UDL is efficient in promoting accessibility and the students' sense of learning, other directed socio-emotional learning strategies might be required to enhance the connection between perception of UDL and socio-emotional competence in middle stage students.

Thus, the study posits that while UDL successfully enhances inclusivity as well as positive student attitudes towards learning, its impact on socio-emotional competence is indirect and necessitates complementary approaches like explicit SEL programs, teacher training in emotional scaffolding, and the embedding of socio-emotional goals in UDL-based teaching. These findings highlight the necessity of an integrative approach uniting UDL with deliberate socio-emotional development initiatives to maximise both academic and non-academic results among middle-stage students.

Educational Implications

Universal Design for Learning (UDL) by itself was not significantly associated with socio-emotional competence; it indicates that teaching and schools must include socio-emotional learning (SEL) programs with UDL-based instruction to cater to both academic and emotional growth. Teacher preparation courses must focus not just on UDL principles for inclusive classrooms but also on approaches to build socio-emotional competencies like empathy, self-awareness, and collaboration. Moreover, curriculum designers need to create learning activities that combine flexible, student-centred strategies with deliberate SEL elements to promote an inclusive environment that facilitates comprehensive development in middle-stage learners.

Conclusion

The National Education Policy (NEP) 2020 emphasises the importance of inclusive education through flexible teaching approaches that align with the principles of Universal Design for Learning (UDL) to cater to diverse learning needs. It also highlights the development of socio-emotional skills as a key part of holistic education, encouraging the integration of socio-emotional learning (SEL) into the curriculum to promote empathy, resilience, and emotional well-being among students. Together, NEP 2020 advocates for a learner-centred approach that supports both academic growth and socio-emotional development. This study shows that even though middle-stage students have a positive view of Universal Design for Learning (UDL) practices and display a satisfactory level of socio-emotional competence, there is no significant relationship between the two variables. This means that while UDL helps make learning more accessible and inclusive for all students, it does not, by itself, directly improve socio-emotional skills. These findings are important because they highlight that UDL alone may not be enough to support the overall development of middle-stage students. To help students grow not only academically but also emotionally and socially, teachers and schools may need to combine UDL methods with specific socio-emotional learning (SEL) programs and activities. For example, integrating classroom discussions on emotions, teamwork exercises, and problem-solving activities within a UDL framework could strengthen students' emotional and social skills while also supporting their learning needs. This study also adds to existing research by showing that context matters. Factors like teacher training, classroom environment, and cultural differences may influence how well UDL supports socio-emotional growth.

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