

Collaboration Literacy for Inclusive Education: The Sociometric Paradigm

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Abstract: Inclusive education, as defined by UNESCO, aims to address the diverse needs of individuals by promoting participation in learning and reducing educational exclusion. Adults, often marginalized in educational pursuits due to age, benefit significantly from collaborative literacy, which supports academic and social development. Collaborative literacy, an essential 21st-century skill, involves the integration of various reading strategies within a group setting, fostering critical thinking and comprehension. Unlike traditional education, adult education prioritizes experiential and problem-solving approaches, making collaborative literacy particularly effective for adult learners. This method not only enhances individual comprehension and critical thinking but also cultivates a collaborative environment conducive to lifelong learning. The concept of collaboration literacy encompasses a comprehensive approach that includes partnership, planning, process, and product, ensuring a cohesive learning experience. It is based on the transactional theory of reading, emphasizing the social context of learning. This approach involves multiple strategies, such as Readers Theatre and Book Club Discussions, to engage learners actively and foster meaningful dialogues. The socio-metric paradigm further refines this concept by considering multi-modal interactions and power dynamics within collaborative groups. Collaboration literacy offers numerous benefits, including improved comprehension, increased student participation, enhanced responsibility, and motivation. It also supports the development of oral proficiency and writing skills. The role of teachers and parents is crucial in creating a supportive environment that encourages active learning and critical thinking. Ultimately, collaborative literacy equips learners with the skills necessary for effective communication and problem-solving in diverse contexts

Keywords: Collaboration, Inclusive Education, Literacy, Sociometric Paradigm

1. Introduction

Inclusive education according to UNESCO is seen as a process of addressing and responding to the various needs of individuals via increasing participation in learning, cultures and communities and reducing exclusion from education and from within education. Adults because of their age have been marginalised and excluded in educational pursuit and search for knowledge and skills. The rate at which adults student learn differs from younger students, hence the need for collaborative literacy. They need to be included so as to support them academically and socially and be beneficial to their families and communities (UN, 2010). Being able to efficiently practice collaborative challenge solving has been majorly known as one of the major skills that is necessary to succeed, learn, and work in the 21st-century. Despite its significance, the advancement of collaboration skills usually comprise of exposing learners to a series of collaborative experiences with limited support. Furthermore, most of the response is about the final product of the collaboration, with almost no feedback about learners' collaboration skills (Lai, 2011). Collaboration has newly been recognized as an essential educational outcome in its own right, instead of just a means to develop or assess comprehension, which is learned through engagement and practice (Lai, 2011).

1.1 Aim and Objectives

The study examined collaboration literacy for inclusive education: the sociometric paradigm. Firstly, the study specifically explored the role of collaboration literacy in fostering inclusive education by enhancing critical thinking, problem-solving, and communication skills among diverse learners. The study seeks to examine how collaborative literacy strategies, such as group discussions and peer-led activities, can engage students of various abilities and backgrounds, promoting a more inclusive and equitable learning environment. Secondly, the study investigated the sociometric paradigm's influence on student interaction patterns, social dynamics, and learning outcomes in collaborative settings. By assessing how collaborative literacy techniques influence group cohesion and peer relationships, the research aims to identify best practices for implementing inclusive education that fosters both individual and collective growth. Ultimately, the study seeks to contribute to the development of instructional methods that support diverse learners, especially those with disabilities, in achieving academic success within inclusive classrooms.

2. Methodology

The methodology employed to achieve the objectives of this study was grounded in a literature-based review, also known as secondary research. This approach was chosen to synthesize and critically analyse existing studies, theories, and scholarly works related to collaboration literacy, inclusive education, and sociometric methods. The literature review method provided a comprehensive understanding of the theoretical frameworks, historical developments, and contemporary applications of collaboration literacy within inclusive educational settings. To carry out the literature review, scholarly databases such as Google Scholar, JSTOR, and ERIC were extensively searched for peer-reviewed journal articles, books, reports, and conference papers. Keywords including "collaboration literacy," "inclusive education," "sociometric paradigm," "adult education," and "educational collaboration" were used to identify relevant sources. The selection of literature was based on their relevance to the study's focus on enhancing educational outcomes through collaborative methods, particularly in diverse classrooms involving students with varying learning abilities.

The review process involved the identification and examination of major themes, trends, and gaps in the existing body of knowledge. Key theories, such as Rosenblatt's transactional theory of reading and Knowles' adult learning theory, were explored in relation to their applicability to collaborative literacy and inclusive education. Additionally, studies highlighting the benefits and challenges of implementing collaborative literacy in inclusive classrooms were critically evaluated. The analysis aimed to identify effective practices and strategies that could support inclusive education through collaboration literacy, with a focus on promoting equal participation and social integration among learners.

2.1 Concept of Adult education

Adult education is different from child education. It is a practice in which adults engage in systematic sustained self-educating activities in order to gain new forms of knowledge, skills, attitudes or values. The encyclopaedia described adult education as any form of learning undertaken by or provided for matured men and women. In the national institute of adult education reform, adult education was described as any kind of education that is organized for people who are old enough to work, vote, and marry. As a concept, adult education demarcates a sub-field of education that is distinct from the conventional method. Due to the search for a wide variety of educational goals by adults like literacy and work readiness skills, knowledge and technical competence, credentials for status attainment, information for improvement of family health and psychological well-being, knowledge values and discipline for spiritual growth and intellectual enrichments among others. Adults as learners according to adult learning theory by Knowles (1984) prefer to learn when it is convenient for them, and also how applicable what they have learnt is to them. In clear terms, adults need to know why they need to learn something, adults need to learn experientially, adults approach learning as problem solving and adult learn best when the topic is of immediate value. An adult class definitely comprises of adults of various age groups who has diverse responsibilities and also different capacity to learn. When

collaborative literacy is used to teach them in the classroom, it will boost their thinking skills. The average learner amongst them will be sharpened by the bright ones.

2.2. Concept of Collaboration Literacy

Literacy is introductory. The attainment of language and literacy skills is so essential that it has been known to be directly linked to overall health status, mental health status, lifestyle, income, living and working conditions. While literacy limits obstacles to obtaining psychological, physical, economic, and social well-being, poor literacy levels can lead to a lifetime of economic and social insecurity (Dede, 2010).

Collaboration, more than teamwork, more than organization, more than agreement, represents “the whole is greater than the sum of its parts.” Collaboration illustrates “Two heads are better than one.” The partnerships, defined at first by two, can develop to include building curriculum planners, classroom coaches, and building technical coordinators. The task of the partnerships will motivate other teachers. Boosted teaching and learning will occur. Learners will have established lifelong learning skills even when technological set-ups and instructional trends change. Collaboration can be described as the four P’s: partnership, planning, process, and product. The 4 P’s, when used collectively, create a cohesion that gives the link, anticipation and energy; planning, depth of purpose; process, clarity of direction; and product, significant expression of learners learning. Collaboration, at the peak of critical thinking, teaching and learning, pictures the students at their learning best and the teacher at their teaching best (Granda, Echeverría, Chiluita & Wong-Villacrés, 2015).

Many scholars have observed the already existing descriptions of collaboration literacy, got it refined to their own liking, and eventually portraying diverse views and definitions of literature circles that others must sift through (Fawcett & Garton, 2005). The many clarifications of the concept of collaboration literacy have often changed the original notions and practices of collaboration literacy. However, one idea appears to infiltrate much of the literature that is collaboration literacy is an addition of individual reading and collaborative teaching (Blaskovich, 2008).

Collaboration literacy is the capability to determine and react to alterations in the quality of a collaborative experience. From the learner’s viewpoint, this amounts to being cognizant of one’s own impact to a group, as well as the alertness and ability to interfere so as to make a strong collaboration. From the teacher’s perspective, this encompasses consciousness of how various groups are progressing, the ability to respond to those groups in a timely manner; and developing reminders and activities that enhance good collaboration.

Collaborative literacy builds on the ideas of Rosenblatt in 1978, who explained the process of reading to be a carefully organized link between the reader and the text in a social situation. Collaborative literacy can be simply defined as the utilization of various strategies to occupy the readers in a group setting. For gifted students, who are relatively social by nature (Knoll, Plumbaum, Hoffmann & De Luca, 2010), this approach constructs on their essentials and attributes in the reading process. Collaborative literacy is hinged on the transactional theory of reading, which stresses that the social and situational context for reading affects the types of reading tasks to be presented. There is a dynamic link among context, the reasons for reading, the types of text included in the reading, the aims for reading, and the techniques that the reader uses.

Collaboration literacy calls for the use of multiple strategies that engage the learner in highly motivating group activities such as Readers Theatre and Book Club Discussions. The purpose of this strategy is to encourage learners to read with a focus and then report on and discuss what they read, determining for themselves what is significant in their reading and why. Collaboration literacy gives learners a choice in what they read and an opportunity to talk to each other on a weekly basis about a particular book. This encourages free expression of the readers’ opinion, and the opportunity to share ideas that learners normally would not in a whole group classroom setting. Collaboration literacy is an

active response model of collaborative discussion, which promotes students' learning and reduces behavioural problems that may occur in the classroom (Lubold & Pon-Barry, 2014).

Mercer (1996) allows for his definitions to include the idea that, “collaboration literacy is a technique that could generally be identified as collaborative, group interaction related to reading texts- texts that are exciting and allow for discussion”. He then facilitates this idea even more by stating, “This current term, unfortunately, dissuades educators from using this strategy with nonfiction texts, assuming that the structure is precisely intended to be a form of book club” (Mercer, 1996). Another researcher, Montiel-Overall (2005) explains that collaboration literacy is a ‘best practice’ structure that expresses the possibility paradigm.

On collaboration literacy, learners must be learning and reading at the rate at which they can independently function; this is particularly significant when teachers are expecting learners to have natural dialogs about literature. The idea of having all learners learning at the same time, yet learning within their limits is essential to remember, particularly when learners with disabilities are included in these discussion practices. Wise and Chiu (2011) clarifies that successful collaboration literacy hinge on a classroom environment that everyone feels valued. Building a climate that is appropriate for each learner to feel comfortable talking about a text because they know their view will be appreciated is so important and therefore becomes very essential in a classroom.

Webb, Nemer, Chizhik and Sugrue (1998) list the following eleven elements of collaboration literacy within his research:

- i. the capability for students to select their own reading materials;
- ii. creation of small groups that continue temporarily dependent on choice reading materials;
- iii. different reading groups using different reading materials;
- iv. establishment of a routine schedule for students to meet in their reading groups;
- v. use of notes to monitor further discussion either in writing or in drawings;
- vi. learner’s led discussions, including student selection of topics;
- vii. targets natural dialogue in open group discussions;
- viii. teacher as facilitator not distributor of knowledge;
- ix. assessment performed through teacher observation and student self-evaluation;
- x. constructive atmosphere for reading for enjoyment;
- xi. group conclusions that involve a sharing session with classmates followed by establishment of new reading groups.

The research base for collaborative literacy shows that the more driven readers become, the more they are to eagerly engage in collaborative literacy strategies and to labour harder at constructing personal meaning and upgrading their reading achievement. Motivation influences the curiosity, purpose, emotion, and determination of the student as they engage with texts (Griffin & Care, 2014).

In creating collaboration literacy, the teacher and learners work collaboratively, in which they design the curriculum together. Once literature sphere commences and students know their roles, the teacher can relax and permit students to be in charge for their own learning. If the group or a learner gets off task, the teacher can step in to intervene at his/her discretion.

A claim is made that collaboration literacy add to the development of skilful and thoughtful readers at all grade levels (Callison & Preddy, 2006). Readers collaborate to build communicational skills for talking about texts in personal and thoughtful ways. Collaboration literacy can also be used as a method of assisting learners make their own ideas about what they read and provide conversational structures that help learners and teachers break away from typical discourse patterns. They can gradually help learners to take responsibility for reading, comprehending, interpreting, developing discussion of text, and engaging in increasingly more complex levels of reading and thinking (Cukurova, Luckin, Millán & Mavrikis, 2018).

Israel, Sisk and Block (1976) in their book on collaborative literacy: using gifted strategies to enrich learning for every student also critically examined the term. The resource incorporates higher level thinking and reading strategies that promote academic achievement for both gifted learners and struggling learners. Israel, Sisk & Block are recognized leaders in the field of literacy and reading. It was explained that teachers should be with tools to create collaborative literacy classrooms where learners can generate ideas independently; talk about them and then develop new concepts within a group environment. Collaboration motivates critical thinking skills and helps to develop and enrich reading, writing, speaking and thinking experiences not just for gifted readers, but for all learners. It entails;

- I. understanding of insights will be more on how collaborative literacy affects gifted students and your entire classroom
- II. building collaborative literacy environment for all students and your entire classroom
- III. building collaborative literacy environment for all students
- IV. involving parents in collaborative learning literacy
- V. stimulating creativity to increase critical thinking and develop richer comprehension

2.3. Benefits of Collaboration Literacy

Recent evidence proves that collaboration literacy positively influence learner learning processes and vocabulary development. Much of this impact is directed towards several significant areas for language learning, including the following.

Improved comprehension skills

Most important of all the benefits, collaboration literacy helps learners develop comprehension skills that are essential when reading a text. Collaboration literacy support strategies such as visualizing, connecting, questioning, inferring, and analyzing that are vital to major comprehension and lively communication (Roschelle, 1992). Since the assigned tasks in collaboration literacy needs learners to draw the events, draw questions, and summarize the text, learners are called upon to use a variety of strengths and skills to organize for the discussion. As learners perform their roles, they draw information from the text, pay attention to details to back up their ideas, highlight main views, and respond critically to what they have read by making decisions about the characters' intentions and actions, and about how and why things occurred in the story

Increased student participation in a safe environment

Collaboration literacy assists to offer a safe classroom environment where learners can build confidence and feel enabled to take risks while interacting in their second language (Scherr & Hammer, 2009). Learners may feel more easy working with their colleagues than being constantly supervised or corrected by the teacher and may be more willing to share their opinion without getting anxious about making mistakes.

Enhanced responsibility and motivation

Another profit of collaboration literacy is assisting learners to have a sense of ownership and responsibility. Student choice and social dealings easily fit in into collaboration literacy, which aid student motivation and can have a very dominant effect on achievement (Kleinsmann, Deken, Dong & Lauche, 2012). Scholars have also discovered that when learners work in collaborative groups they motivate each other's efforts and that this leads to increased interest and effort (Knoll et al., 2010; Lai, 2011).

Expanded collaborative discussion

Reading specialists itemised discussion, student response, and collaboration, all aspects of collaboration literacy, as essential for channelling a way for students to get involved in critical thinking and reflection (Fawcett & Garton, 2005). When students learn a second language, collaborative

communications with peers often play a major role in reinforcing understanding skills because the active participation that takes place necessitates speaking and listening to many different view-points, which deepens second language learners' comprehension (Mercier, Higgins, Burd & Joyce-Gibbons, 2012).

Developed oral proficiency

Research discovered that the target language is known more effectively when second language learners have diverse opportunities to practice real conversation; occupied in groups offers students with chances for social interaction and communication about concerns important to them (Roschelle & Teasley, 1995). During the meaningful oral discussions that occur in collaboration literacy, learners have more chances to practice oral skills, which may aid in oral proficiency development.

Reinforced writing skills

Reading interactions may have helpful effects on writing skills in general; they may also assist in greater participation as students submit their views on paper. Teachers can assign enticing and challenging group-writing tasks that motivate students' critical thinking, such as selecting a different conclusion to a short story, writing a short appraisal, or addressing writing aides-mémoires that depict knowledge of what they have read (van Leeuwen, Janssen, Erkens & Brekelmans, 2015).

Collaboration literacy roles encourage students to become more skilled readers via use of specific reading strategies. Martinez-Maldonado, Echeverria, Santos, Santos and Yacef (2018) concludes that "The role choices are not arbitrary; rather they have significant basis in theory of reading instruction". The roles offer students with techniques for improving reading comprehension that include

- i. triggering prior knowledge;
- ii. choosing what is essential in a text and synthesizing information;
- iii. drawing inferences during and after reading;
- iv. self-monitoring comprehension, mending faulty comprehension;
- v. making enquiries, and;
- vi. utilizing strategies for building vocabulary (O'Brien, 2007).

Collaboration literacy gives learners occasion to partake actively in their learning process, making learners conscious that they are able to add to their learning. Lai (2011) says that in collaboration literacy learners learn by themselves from, each other, instead of being dependent on their teachers. Literature by structure, they engage learners cooperatively in the reading discussion procedure, which build a collaborative environment that assists learners to overcome classroom encounters. This opinion is supported by Ling; according to this author's literature, circles build a cooperative and collaborative environment that permits learners to obtain skills which enable them to destroy classroom problems such: as: Language problem and the conflict of ideas.

Collaboration literacy builds an informal environment that makes learners feel easily integrated into literature circles. Lai (2011) claims that collaboration literacy reduces student anxiety, which builds an environment that dares students to converse in foreign language and develops their communicative skill. Collaboration literacy can also enlighten learners eyes to the opinions and feelings of others as they talk about the books they read. In these settings, half-formed ideas are explored and writers improve new lenses through which to observe what they have read (Donham, Bishop, Kuhlthau, & Oberg, 2011).

While collaboration literacy offers just one component that makes up the collection of teaching techniques that teachers have to offer them, many have identified their usefulness and the significance of having them as an element in their literacy development. Collaboration literacy cannot form a complete literacy instruction plan, but they do offer many unique opportunities for learners to learn.

Based on observational studies in many different locations, teachers and school systems have viewed different improvements in learner's literacy development when literature spheres became part of their plan of instruction.

2.4. Role of the Teacher and Parents in Collaboration Literacy

The teacher's role in collaborative literacy is to offer instruction on importance of reading and writing skills; offer a variety of stories and poems for reading; organize learning centers in which the learners can use their literacy skills in a variety of real-world situations; model reading and writing behaviours; offer caring and useful guidance on when to use specific reading skills and strategies; and, most important, create a learning environment that actively occupies the students in collaborative literacy in reading and writing with other students (van Leeuwen, et al., 2015).

Teachers using the collaborative literacy program utilize an integrated approach to teaching language arts. They provide authentic opportunities for reading and writing based on a continuum of more to less teacher support. They employ four contexts for reading: reading aloud to children, shared reading, guided reading and reading workshop, and independent reading. In addition, they employ four contexts for writing: language experience and shared writing, interactive writing, guided writing and writing workshops, and independent writing. The teachers use stretchy collaborative grouping, sometimes working with similar groups of readers, and at other times with non-similar groups, depending on the instructional purpose. The approach stresses reflective practice in which teachers are motivated to continually reflect upon the effectiveness of their teaching via discussions, videotape analysis, and systematic observation of their students' progress (Cukurova, et al., 2018).

Parents can be active participants in collaborative literacy activities, like planning and implementing reading and writing activities and instruction for their kids. In schools that use collaborative literacy with parents, parents oversee classroom centers, tell stories about their families, read books aloud, and model the use of reading and writing. Parents are a rich source of information as touching their children, particularly about the child's individual perception and attitude toward reading.

Many gifted learners and advanced readers are upset by having grade-level limits enforced on their selection of reading material. Advanced readers or gifted learners are mostly capable of reading stories that is beyond their grade level. Ideas can be gathered from parents via interviews, questionnaires, home journals on literacy activities, and groups made up of parents. Parents can collaborate with small groups of other parents to plan activities that can be accomplished as after-school experiences in which students and parents can co-build memory books and photo albums and engage in imaginative writing and poetry.

Scherr and Hammer (2009) suggests a number of activities that parents can utilize to motivate and support literacy experiences at home:

- Encourage your child to express what you are reading to him or her
- Help children comprehend the story by motivating them to describe the story in their own words
- Praise your child when he or she makes interesting enquiries or comments about a book
- link the book to your child's life by discussing interesting things the book reminds you of that really happened
- Ask questions that start with why and how
- Wait for answers, permitting the child time to think of a good answer
- Point to the words as you read with younger children
- Rotates while reading with older children
- Carefully pick books that are not too easy or too difficult
- Have fun and make reading together an enjoyable experience

2.5. The Socio-metric Paradigm of Collaboration Literacy

The sociometric paradigm serves as a crucial lens through which collaboration literacy can be better understood in inclusive settings, as it focuses on social relationships and peer interactions, both of which are critical to the success of collaborative learning environments. This integration of sociometry into collaboration literacy is pivotal for understanding how social dynamics within classrooms can either facilitate or hinder inclusive education. The sociometric paradigm was first introduced by Jacob Moreno in the early 20th century as a method of mapping social relationships to better understand group dynamics (Moreno, 1953). In the context of collaboration literacy, sociometry offers insights into how students' social networks influence their learning experiences, particularly in inclusive classrooms where learners with differing abilities and backgrounds come together. By using sociometric tools to assess the structure of social relationships within these classrooms, educators can identify patterns of social inclusion and exclusion, and intervene to ensure that all learners, regardless of ability, have equitable opportunities to participate in collaborative learning activities. This paradigm, therefore, complements the goal of collaboration literacy by highlighting the importance of fostering positive social interactions alongside academic engagement.

Inclusive education, which advocates for the participation of all students, including those with disabilities, in mainstream classrooms, has gained global recognition as a key component of educational equity (UNESCO, 2020). Collaboration literacy fits naturally into this educational model as it encourages cooperative learning, where students engage in group activities that promote shared knowledge construction, problem-solving, and critical thinking. Through the use of collaborative learning strategies such as group discussions, peer feedback, and cooperative projects, students in inclusive classrooms can develop both their academic and social skills. However, for collaboration literacy to be truly effective in inclusive education, attention must be paid to the social dynamics within these groups, which is where the sociometric paradigm becomes essential. Research has shown that students with disabilities often face social isolation in mainstream classrooms, particularly when collaboration is not structured to promote full participation (Schwab, 2019). In such instances, learners with disabilities may be marginalized during group activities, either because their peers perceive them as less capable or because they lack the social skills to fully engage. The sociometric paradigm allows educators to monitor these interactions and identify students who may be at risk of exclusion. By using sociometric assessments, teachers can form groups that are more likely to foster positive interactions, thus ensuring that all students are actively involved in collaborative learning activities. This strategic grouping not only enhances academic outcomes but also promotes social inclusion, which is a key goal of inclusive education.

One of the key insights provided by the sociometric paradigm is that peer relationships play a critical role in students' engagement with collaboration literacy. In inclusive classrooms, where students of varying abilities and backgrounds work together, the quality of peer relationships can significantly impact the effectiveness of collaborative learning. Studies have shown that students are more likely to participate actively and benefit from collaborative literacy strategies when they have positive relationships with their peers (Wentzel & Muenks, 2016). Conversely, students who experience social rejection or exclusion are less likely to engage meaningfully in group activities, which can hinder both their academic progress and social development. The sociometric paradigm helps educators understand the complexities of peer relationships in inclusive settings by mapping out social connections within the classroom. For instance, sociometric techniques such as peer nomination and peer rating can be used to identify students who are highly connected and those who are more isolated. This information is invaluable for teachers when planning collaborative activities, as it allows them to form groups that are more likely to function cohesively. In doing so, educators can create an environment where all students, including those who may have previously been marginalized, are given the opportunity to contribute to group discussions and tasks. By actively managing the social dynamics of the classroom, teachers can ensure that collaboration literacy is not only academically enriching but also socially inclusive.

Another significant benefit of integrating the sociometric paradigm into collaboration literacy is its potential to enhance critical thinking skills. Collaborative learning encourages students to engage with different perspectives, challenge assumptions, and develop solutions through group dialogue. This process of shared knowledge construction is particularly beneficial in inclusive classrooms, where students with diverse abilities and experiences bring unique viewpoints to the table. However, for this critical thinking process to occur, students must feel comfortable sharing their ideas and engaging in discussions with their peers. The sociometric paradigm helps ensure that collaborative learning environments are conducive to open dialogue by fostering positive social interactions. When students feel socially accepted by their peers, they are more likely to participate in discussions and contribute to group problem-solving activities. Research has shown that positive peer relationships are associated with increased participation in classroom discussions and higher levels of critical thinking (Mercer & Howe, 2012). By using sociometric assessments to identify and address social barriers within the classroom, educators can create an environment where all students feel empowered to contribute to group discussions, thereby enhancing the overall quality of collaborative learning.

Inclusion in education is not limited to the physical presence of students with disabilities in mainstream classrooms; it also involves creating learning environments that accommodate their diverse needs. Collaboration literacy, when informed by the sociometric paradigm, provides a framework for addressing these needs by promoting differentiated instruction. Differentiated instruction involves tailoring teaching strategies to meet the unique learning styles and abilities of individual students. In the context of collaborative literacy, this means that group activities are designed to ensure that all students can participate meaningfully, regardless of their abilities. The sociometric paradigm allows educators to assess the social and academic needs of their students and adapt collaborative learning activities accordingly. For example, students who are socially isolated may benefit from being placed in groups with peers who are more socially competent and can help them engage in group activities. Similarly, students with learning disabilities may require additional support, such as scaffolding, to fully participate in collaborative tasks. By using sociometric data to inform group formation and instructional strategies, educators can create collaborative learning environments that are both inclusive and effective for all learners (Tomlinson, 2017).

The role of the teacher is critical in facilitating collaboration literacy within the framework of the sociometric paradigm. Teachers are not only responsible for structuring collaborative learning activities but also for monitoring and managing the social dynamics within the classroom. According to recent studies, teachers who are attuned to the social interactions of their students are better able to create positive learning environments that support collaboration (Vangrieken, Dochy, & Raes, 2015). The sociometric paradigm provides teachers with the tools to assess these social interactions and make informed decisions about how to structure collaborative activities. For collaboration literacy to be successful, teachers must also adopt a facilitative role, guiding students in their interactions and helping them navigate the social complexities of group work. This involves providing students with the skills they need to engage in effective communication, conflict resolution, and peer support. By teaching these social skills alongside academic content, educators can help students become more proficient in both collaboration and literacy. The sociometric paradigm supports this by offering insights into how students interact with their peers, allowing teachers to intervene when necessary to promote positive social interactions.

Text also tends to be a rich modality for garnering insights about the manner of an interaction. Specifically, Webb, et al., (1998) discovered that utilizing various simple features for how fast someone writes, or draws, the percentage of time they use the calculator and how frequent they mention numbers or mathematical terms, are good proxies for forecasting their rate of expertise within a group. Hence, in certain situations, a uni-modal, individual approach can offer a reasonable commencing point for ascertaining the nature of group collaboration in the case of verbal involvement, instead of looking at how much someone chatted, researchers consider the nature of turn-taking within a particular group. In addition to looking at how rotating turns are distributed across a group, researchers might utilize more qualitative approach, and code participant sounds for ways that turns are managed, and the ways that a given speaker's idea is taken up by the other participants.

For instance, researchers might identify when someone is reacting to a previous utterance, or examine when a given utterance signs student agreement with a given idea (Granda, et al., 2015). In these cases, a given utterance only becomes relevant in context of the surrounding utterances, and in the context of the other individuals within the space. This is one of the important pieces added by considering multi-party collaboration. The multi-party level also allows for more direct consideration of the power relations or social dynamics of a given group. Another good example of unimodal, multiparty collaboration is visual joint attention (Knoll, et al., 2010). Joint visual attention refers to instances where two, or more, individuals are looking at the same location, or object, at, roughly, the same time. Many prior studies have highlighted the importance of joint visual attention for promoting learning and perceptions of collaboration quality. It can also be indicative of power relations, when considering who, within a given collaborative group, receives the visual attention of their peers when speaking.

Another level of socio-metric paradigm surfaces the opportunities for using data from different modalities to represent perceived student state. For instance, we can represent user engagement based on the presence or absence of speech. If, though, a user is generating speech without addressing their peers, as detected through head pose estimation, or eye gaze, it becomes less likely that the user is appealing in the collaborative task. Returning to the example of verbal offerings, when we mention semantics, we are looking at the words that are uttered, and deriving meaning from those collections of words. Taking a multimodal and semantic perspective with signals refers to recognizing specific gestures in the gesticulations that a student is making, and, perhaps, connecting those gestures with user spoken utterances. A simple gesture one might do in a classroom is raising one's hand, or pointing. In order to discover these gestures, one has to depend on a semantic understanding of the student's gesticulation (Martinez-Maldonado, et al., 2018).

The integration of the sociometric paradigm into collaboration literacy offers a powerful framework for promoting inclusive education. By focusing on the social dynamics of the classroom, the sociometric paradigm helps educators create collaborative learning environments that are both academically enriching and socially inclusive. Through the use of sociometric assessments, teachers can better understand the peer relationships within their classrooms and structure group activities that promote positive interactions and full participation.

3. Conclusion

The study has highlighted the critical role that collaborative literacy practices play in fostering inclusive educational environments. Through a comprehensive literature-based review, the research synthesized various theoretical frameworks, including Rosenblatt's transactional theory and Knowles' adult learning theory, in the context of collaboration and inclusion. It has become evident that collaboration literacy is a vital tool for promoting not only academic success but also social integration, especially in classrooms where learners exhibit diverse needs and abilities. The sociometric paradigm, which focuses on the dynamics of relationships and social interactions within educational settings, provides a valuable lens through which inclusive education can be better understood and implemented. Studies reviewed demonstrated that collaborative practices enhance students' interpersonal skills, increase engagement, and create a sense of belonging, all of which are crucial for learners who may otherwise feel marginalized. Furthermore, the research revealed that successful implementation of collaboration literacy in inclusive education settings is dependent on a supportive school culture, teacher training, and the use of adaptive teaching methods that cater to diverse learning styles.

In conclusion, this study has underscored the importance of collaboration literacy as a foundational element in achieving true inclusivity in education. By fostering cooperative learning environments where students of all abilities can participate equally, educators can create classrooms that are not only academically enriching but also socially inclusive. The findings suggest that future research should continue to explore innovative strategies for integrating collaborative literacy into inclusive education, while also addressing the practical challenges faced by educators in diverse learning environments. This will ensure that collaboration literacy remains a dynamic and evolving tool for promoting educational equity.

References

- [1] Blaskovich, J. L. (2008). Exploring the effect of distance: An experimental investigation of virtual collaboration, social loafing, and group decisions. *Journal of Information Systems*, 22(1), 27–46.
- [2] Callison, D. & Preddy, L. (2006). *The Blue book on information age inquiry, instruction and literacy*. London, Libraries Unlimited.
- [3] Cukurova, M., Luckin, R., Millán, E., & Mavrikis, M. (2018). The NISPI framework: Analysing collaborative problem-solving from students' physical interactions. *Computers & Education*, 116, 93-109.
- [4] Dede, C. (2010). Comparing frameworks for 21st century skills. *21st century skills: Rethinking how students learn*, 20, 51-76.
- [5] Donham, J., Bishop, K., Kuhlthau, C. & Oberg, D. (2001). *Inquiry-based learning: lessons from library power*. Worthington, OH: Linworth.
- [6] Fawcett, L. M., & Garton, A. F. (2005). The effect of peer collaboration on children's problem-solving ability. *The British Journal of Educational Psychology*, 75(2), 157–169.
- [7] Granda, R. X., Echeverría, V., Chiluiza, K., & Wong-Villacrés, M. (2015). *Supporting the assessment of collaborative design activities in multi-tabletop classrooms*. Paper presented at the 2015 Asia-Pacific Conference on Computer Aided System Engineering
- [8] Griffin, P., & Care, E. (2014). *Assessment and teaching of 21st century skills: Methods and approach*: Springer.
- [9] Kleinsmann, M., Deken, F., Dong, A., & Lauche, K. (2012). Development of design collaboration skills. *Journal of Engineering Design*, 23(7), 485-506. doi:10.1080/09544828.2011.619499
- [10] Knoll, S.W., Plumbaum, T., Hoffmann, J. L., & De Luca, E.W. (2010). Collaboration ontology: Applying collaboration knowledge to a generic group support system. In G-J. De Vreede (Ed). *Proceedings of the Group Decision and Negotiation Conference 2010*, Delft, The Netherlands (p.37).
- [11] Knowles, M. (1975) *Self-Directed learning*. Chicago: Follet
- [12] Knowles, M. (1984), *The Adult learner: A neglected species* (3rd Ed.). Houston: Gulf publishing
- [13] Knowles, M. (1984) *Andragogy in Action*. San Fransisco: Josey-Bass
- [14] Israel, S. E., Sisk, D., & Block, C.C (1976), *Collaborative literacy: using gifted strategies to enrich learning for every student*. Royal fireworks press.uk.sagepub.com
- [15] Lai, E. R. (2011). *Collaboration: A Literature Review*. Retrieved from [http://images.pearsonassessments.com/images/tmrs/Collaboration Review.pdf](http://images.pearsonassessments.com/images/tmrs/Collaboration%20Review.pdf)
- [16] Lubold, N., & Pon-Barry, H. (2014). *Acoustic-Prosodic Entrainment and Rapport in Collaborative Learning Dialogues*. Paper presented at the Proceedings of the 2014 ACM workshop on Multimodal Learning Analytics Workshop and Grand Challenge, Istanbul, Turkey.
- [17] Martinez-Maldonado, R., Echeverria, V., Santos, O. C., Santos, A. D. P. D., & Yacef, K. (2018). *Physical learning analytics: A multimodal perspective*. Paper presented at the Proceedings of the 8th International Conference on Learning Analytics and Knowledge.
- [18] Mercer, N. (1996). The quality of talk in children's collaborative activity in the classroom. *Learning and Instruction*, 6(4), 359–377.
- [19] Mercier, E. M., Higgins, S., Burd, E., & Joyce-Gibbons, A. (2012). *Multi-touch technology to support multiple levels of collaborative learning in the classroom*.
- [20] Mercer, N., & Howe, C. (2012). Explaining the dialogic processes of teaching and learning: The value and potential of sociocultural theory. *Learning, Culture and Social Interaction*, 1(1), 12-21.
- [21] Montiel-Overall, P. (2005). A theoretical understanding of teacher and librarian collaboration (TLC). *School Libraries Worldwide*, 11 (2), 24 – 48.
- [22] Moreno, J. L. (1953). *Who shall survive? Foundations of sociometry, group psychotherapy, and sociodrama*. Beacon House

- [23] Roschelle, J. (1992). Learning by Collaborating: Convergent Conceptual Change. *The Journal of the Learning Sciences*, 2(3), 235-276. Retrieved from <http://www.jstor.org/stable/1466609>
- [24] Roschelle, J. & Teasley, S. D. (1995). The construction of shared knowledge in collaborative problem-solving. In C.E. O'Malley (Ed.), *Computer-supported collaborative learning* (pp.69–97). Berlin: Springer-Verlag.
- [25] Scherr, R. E., & Hammer, D. (2009). Student Behavior and Epistemological Framing: Examples from Collaborative Active-Learning Activities in Physics. *Cognition and Instruction*, 27(2), 147-174. [doi:10.1080/07370000902797379](https://doi.org/10.1080/07370000902797379)
- [26] Schwab, S. (2019). Teachers' ratings of inclusive classroom settings: The role of classroom management and inclusive teaching strategies. *International Journal of Inclusive Education*, 23(6), 604–617.
- [27] Tomlinson, C. A. (2017). *How to differentiate instruction in academically diverse classrooms*. ASCD.
- [28] UNESCO. (2020). *Global education monitoring report 2020: Inclusion and education: All means all*. UNESCO.
- [29] Van Leeuwen, A., Janssen, J., Erkens, G., & Brekelmans, M. (2015). Teacher regulation of cognitive activities during student collaboration: Effects of learning analytics. *Computers & Education*, 90, 80-94. doi: <https://doi.org/10.1016/j.compedu.2015.09.006>
- [30] Vangrieken, K., Dochy, F., & Raes, E. (2015). Teacher collaboration: A systematic review. *Educational Research Review*, 15, 17-40.
- [31] Webb, N. M., Nemer, K. M., Chizhik, A.W., & Sugrue, B. (1998). Equity issues in collaborative group assessment: Group composition and performance. *American Educational Research Journal*, 35(4), 607–651.
- [32] Wentzel, K. R., & Muenks, K. (2016). Peer relationships, motivation, and academic performance at school. In K. R. Wentzel & G. B. Ramani (Eds.), *Handbook of social influences in school contexts: Social-emotional, motivation, and cognitive outcomes* (pp. 131-146). Routledge.
- [33] Wise, A. F., & Chiu, M. M. (2011). Analyzing temporal patterns of knowledge construction in a role-based online discussion. *International Journal of Computer-Supported Collaborative Learning*, 6(3), 445-470. [doi:10.1007/s11412-011-9120-1](https://doi.org/10.1007/s11412-011-9120-1)