The dynamics of the group

By Dr Ross J. Todd

The Australian Curriculum recognises the central role of information technology, not merely as a tool to support learning, but as a flexible learning environment where knowledge creation and representation, problem solving and innovation, and collaborative communication, and interaction and decision-making take place. In particular, the Australian curriculum's focus on ICT gives emphasis to investigating, creating, and communicating with ICT, as well as managing and operating ICT and applying social and ethical protocols when using ICT.

A considerable body of research exists that provides insights into students' use of information technology to access and locate information, their web search and database use behaviors, how they conduct research and transform collected information into their own understanding, and their engagement with digital devices. Given the fast-changing pace of the digital environment and the recent emergence of advanced internet technologies, a key research challenge currently is to understand more deeply the cognitive, personal and social dynamics of how students learn in socially constructed digital environments, how they work both independently and in collaboration with others, and how they transfer capabilities and dispositions across different learning environments.

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Currently, my team in the Center for International Scholarship in School Libraries (CISSL) at Rutgers University is undertaking a research study that examines the cognitive, personal and social dynamics of students undertaking a collaborative research-based inquiry task in a digital environment. The current phase of this research involves two accelerated English classes of grade nine students in a New Jersey public co-educational high school engaged in a collaborative inquiry-based task in a wiki environment. 42 students, randomly assigned to 13 groups, were involved. The accelerated course focuses on examining challenging literature in the genres of short story, novel, drama, nonfiction, and poetry. It involves independent reading assignments, stresses critical thinking and speaking skills, and the development of advanced research and reasoning strategies. In the research task, student groups were assigned a novel, and given the task of assessing the literary merit of the work and constructing a cogent argument and public presentation in relation to the assigned work.

Within this context, the overall goals of this research study are to:

1. track the process of team work: to understand how student teams work together to build a shared representation of knowledge;
2. examine the dynamics of the co-construction of knowledge by teams of students;
3. track students' engagement with information sources and how the teams transform and co-construct text into their joint representation of knowledge;
4. track both individual learning and group learning, and to understand the relationship between individual knowledge developed in the process and the team representation of the joint product created in the process.

Students undertook their group inquiry research task in a class wiki environment that was structured to meet the specific curriculum objectives, and which enabled the students to discuss their research topics, establish working relationships, plan and manage the tasks and the research process. Students were also charged to collect information sources and work together through the process of co-constructing their products, which included a class presentation, visual display, and the creation of an annotated bibliography. The wiki environment was developed by the school librarian to enable the researchers to capture and track the student's research and writing processes, their use of information sources, their interpersonal dynamics and

decision-making processes, and how they went about collaboratively creating their products. In addition, the wiki space captured interactions and feedback from the instructional team. The digital space also enabled researchers to gather data to understand how the information environment and instructional interventions helped or hindered the knowledge construction process.

As part of the learning requirements, students made daily journal entries during the two weeks that the classes were scheduled in the library for a range of instructional interventions led by the school librarian. These interventions were based on the stages of the Guided Inquiry framework developed by Kuhlthau, Caspari & Maniotes (2007). Students also completed a pre and post reflection task to provide further insights into the cognitive, affective and interpersonal aspects of the research and writing process. These were integrated into the sequence of instruction and the research journey. Data were collected using the SLIM Reflection Tasks (Student Learning Through Inquiry Measure developed by CISSL) to track both individual learning and group learning, with emphasis on the knowledge construction process, and the cognitive, affective and behavioral dimensions.

Did the students show evidence of collaborate or cooperative learning?

At this stage of data analysis, we have been examining students' perceptions of working in groups. Much of the relevant literature revolves around the concepts 'collaborative learning' and 'cooperative learning'. A common distinction between the two is that in collaborative learning, the group works together from start to finish, including negotiating topics, goals, and outcomes, as well as engaging in the co-construction of knowledge. In cooperative learning, the learning task is divided into a set of subtasks which are undertaken individually, sometimes based on negotiation of who will complete individual parts, and then the final product is assembled by bringing together the subparts to be presented as a public representation of the groups' knowledge. Did the students show evidence of collaborate or cooperative learning?

The analysis of the student reflections at the pre- and post-staged of the research task reveal some challenging patterns about group-based inquiry that have implications for how group based inquiry projects might be designed, structured, managed and utilised to produce deep knowledge and understanding. A key finding that has emerged centers on principles of social justice impacting the learning process. From the perspective of the students, this was seen in terms of equity of contribution, with intellectual input and workload to complete the group task shared equally and fairly across the group. This was most important to the effective functioning of the group process. However, while the group saw these positive aspects of group work, their perceptions at the outset of the research task were quite negative as a result. They were concerned about equal effort and all team members contributing their fair share of work, as well as team members all receiving the same assessment credit when effort was not evenly distributed. At the conclusion of the task, some students remained critical of the group learning process for these very equity reasons.

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At the conclusion of the research task, students particularly saw the value of groups in terms of the opportunity to build richer knowledge about their chosen topic through the sharing of different perspectives, viewpoints and opinions as a basis for negotiating the knowledge to be constructed by the group. Overall this was a strongly stated positive dimension of group work. Students acknowledged that this process enabled them to acquire new ideas not thought of previously, and afforded opportunities for them to think differently about their chosen topic, and to move forward with a wider range of ideas and thoughts. They also saw this as an opportunity to test their own ideas within the group, and to engage in a collaborative dialog of negotiation. Some students acknowledged that this was difficult particularly in finding a pathway through the diverse perspectives and reaching a compromise. However, the remainder of the knowledge building process was one of splitting the task into individual tasks that were to be subsequently woven together, a cooperative rather than a fully collaborative approach.

The social justice, knowledge creation and project management dimensions raise implications for the design and structuring of group research tasks, as well as for determining appropriate interventions and training of students if a full collaborative approach to learning is to be realised. It is important that social justice principles be addressed, particularly in terms of equitable division of workload and effort. Students also need to learn how to co-construct knowledge, rather than divide then stitch together independent research components.

Students also need to understand how they will be assessed, including the value of collaborative teamwork, division of workload and the co-construction of knowledge. The more the group dynamics are understood by educators, and made visible through reflection, journaling and feedback loops to both educators and students, and made explicit in the assessment criteria, the greater likelihood that issues surrounding social justice, knowledge creation and project management may be reduced. Teacher-librarians have a key role in developing these capabilities and dispositions, particularly in the context of team-based research tasks, as well as contributing to the body of empirical evidence about learning in digital environments.

References

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